



10705

# INDIAN ECONOMIC ASSOCIATION.

---

## SIXTH ANNUAL CONFERENCE

HELD IN

LAHORE

January 16th, 17th, 18th and 19th, 1923

---

FIRST DAY—Tuesday, 16th January, 1923.

---

## OPENING ADDRESS

BY

HIS EXCELLENCY

SIR EDWARD MACLAGAN, K. C. S. I., K. C. I. E.,  
GOVERNOR OF THE PUNJAB

---

The first Meeting of the Conference was held in the Town Hall, Lahore, at which most of the Members of the Reception Committee and a large number of the general public were present.

HIS EXCELLENCY SIR EDWARD MACLAGAN, K.C.S.I., K.C.I.E., President of the Reception Committee, took the Chair at 11-0 a.m., and said :—

MR. COYAJEE AND GENTLEMEN,

I am very glad to find that after trying other centres in India you have selected Lahore as the site for your sixth Annual Conference, and it is a distinction for us that this Conference should be presided over by so eminent an economist as Mr. Coyajee. We have a number of gentlemen here who study Economics, and the subject is, as you know, one of growing interest among students at our Colleges. The Deputy President of our Legislative Council, Mr. Manohar Lal, is a former Minto Professor of Economics in the Calcutta University, and though busy with Council and professional work, he finds time for studies in Economic Science. Our University has recently entertained its own

Professor of Economics (Mr. Myles) and with his help a combined class of students for M.A. Economics, taken from all the Arts Colleges in Lahore, has been established, the teachers of different Colleges combining their teaching for this class. You will therefore find not a few kindred souls among us and we hope for much real benefit from your stay.

We are the more appreciative of your visit as we have ourselves in recent years tried to encourage the study of our own economic questions by the erection of a Standing Board of Economic Enquiry. The Board was started in August, 1919, and has taken up a number of subjects for investigation. It receives a small grant from Government and it has at present—if I may dare to use the expression—a steel frame-work of Government officers, but it is in its essence an academic and non-political body and a large and increasing amount of the work done by it is done by non-officials. I hope that when it has found its feet it will evolve into a purely scientific body assisted by the Government and assisting the Government but not in any way under Government control. It has from the beginning been divided into two sections which deal with rural and urban subjects respectively. It has put together some material on household budgets and on the economic condition of certain defined groups of villages. And it has taken up enquiries into such varied subjects as the size and fragmentation of holdings, the economic condition of factory hands, and the supply of milk and ghee, all of which subjects are of much importance to us in this Province. It has commenced the organization of a bureau of statistics and it has furnished Government with opinions on Trade Union Legislation. I hope that members of our Board, many of whom are present here to-day, may receive fresh inspiration for their efforts from the proceedings of your Conference.

I am glad to see that several of our Punjab Government and University officers have arranged to read papers before you,—Mr. Abel is to speak on our Factory Legislation and Administration, Mr. Myles on Industrial Development and Training, Mr. Calvert on the Consolidation of Holdings, Mr. Strickland on Co-operative Farms, Mr. Darling on Rural Debt and Mr. Jacob on the Periodicity of Food Prices. Three of these officers are members of our Co-operative staff, and I am particularly struck by the valuable literary work which the Co-operative officers in our Province have been able to do not only in their own line of co-operation proper but also in general economics. Messrs. Darling and Strickland have published valuable accounts drawn from first-hand experience of the conditions of co-operation in various parts of Europe and Mr. Calvert has produced an admirable series of studies in Punjab Rural Economics under the title of "The Wealth and Welfare of the Punjab." This last is a work which investigates the practical results of the application of economic theories to our rural problems and it is, I venture to think, a book which every one interested in the economic progress of India should read and assimilate.

I know that to some of you the practical results of your investigation are matters of subsidiary interest but to us who have to deal with administrative questions the practical results are what we look to.

Few administrators and politicians have time to be economists, but if they are wise they obtain, when they are young, a general view of economic principles, and as each problem arises they learn as best they can the recent developments of economic theory on the question at issue. The main lines on which we look at this time for development in this Province are—to put it briefly—Education and Agriculture, and on both these lines your studies have a marked bearing. In Western Canada we are told that more than half the farmers are graduates and though we are here still a long way off these conditions, we are trying to foster both Education and Agriculture and the application of the one to the other. If I may refer to history I would exemplify the importance of these lines of development from the experience of Scotland. During the seventeenth century Scotland was subjected to a turmoil of political and religious controversy and when the Union took place at the beginning of the eighteenth century, the only feeling through the country was one of intense hatred towards England and despair for the future. But the Scotch soon learnt the value of peace and for years they devoted themselves to the development of a thorough system of education and a scientific application of rural economy.

There was little enough theory at the back of this at first, but before the eighteenth century was over the Scotch had not only provided for their country the best education and the best agriculture in Europe but by the publication of “The Wealth of Nations” had made the first substantial step towards the systematic study of Political Economy. By the end of the century the Scotch had emerged from the condition of a second rate appenage of England to a position in which they led the van of progress and controlled the destinies of the United Kingdom: a result which was due almost entirely to their having followed—consciously or unconsciously—the dictates of economic principles.

I hope you will not think me presumptuous to have brought this old example forward but it shows I think the advantage of the practice which you all stand for—that of clear thinking applied to the complicated realities of economic life. You strive to make us think accurately. You will not allow the poet to say:—

*Every moment dies a man,*

*Every moment one is born,*

but like Babbage, the mathematician, you point out the inconsistency of the statement with the increase of the population and you insist on our substituting

*Every moment dies a man,*

*And one and one sixteenth is born.*

All this is to the good and I anticipate the greatest benefit from Conferences like this which encourage men to bring together facts untingered by prejudice or passion and to extract lessons from them in the cold light of accurate thought. I wish you all success, gentlemen, in your meetings at Lahore.





## PRESIDENTIAL ADDRESS

ON

## FISCAL POLICY

BY

J. C. COYAJEE, Esq., M.A., PRESIDENCY COLLEGE, CALCUTTA

YOUR EXCELLENCY, LADIES AND GENTLEMEN,

On behalf of the Indian Economic Association I have to express my deep thanks to Your Excellency for your words of cordial welcome. I have also to express our obligation to the Local Secretary and the Reception Committee for their admirable arrangements. The philosopher Plato observed that things will go well with the world when either kings were philosophers or philosophers were kings. In a similar way the economists of India must augur well for the economic future of India when they see an economist in the Governor of this province—an economist whose dicta on co-operation they have studied long with great advantage.

The great fiscal controversy which occupied the political as well as the academical circles of the western world for over a century and which for over half a century has loomed large in the field of Indian Economics has recently assumed an acute and practical turn in our own country. A great deal of preliminary work has been done in the matter by the Indian Fiscal Commission, and the Government of India and the Indian Legislature will soon pass judgment upon the subject. But before such a judgment is pronounced the controversy must come before the economists of India as before a jury of experts whose privilege it should be to pronounce a well-considered verdict and to give a lead to the nation. I am deeply obliged to you for giving me this opportunity of introducing the subject. But the aspects of the fiscal problem are many, and in the space of a few minutes I can only indicate rather than deal exhaustively with some of the aspects. I shall begin by appraising the value of some arguments for protection, and then will examine the nature of discriminating protection. I would end by noticing the problems of foreign capital and the excise duties.

As regards the arguments for protection the place of honour was to be given to the infant industry argument of which the force was increasing automatically with the increase in complexity and scale of business, the rise of joint combinations and the growth of export policies and devices. A co-ordinate place was to be given to the argument for the diversification of industries but not much importance was to be attached to the revenue argument, because protectionist tariffs did not yield big revenues except in countries where the body of consumers was very rich. The case of Japan had been cited to the contrary but with no good reason because relatively to the other sources of revenue the yield of

customs revenue as well as its elasticity were low. Again, in India in the last 16 years customs revenue had multiplied faster than most other sources of revenue, while in the case of Japan the customs revenue increased much less fast than other sources of revenue.

Coming to discuss the nature of discriminating protection, I would point out that its advocates estimated correctly the limitations of the potentialities of protection. High economic authorities had pointed out that protection must work within the limits of comparative economic advantages or of what is called comparative costs. Any attempt to push protection beyond these reasonable limits would reduce our exports as a consequence of reducing the proper scope of international exchange of commodities. Indiscriminate protection abdicated the function of protection which was to guide national production into comparatively more productive lines. In a word the whole scheme of discriminating protection followed the law of comparative costs: it selected industries to protect on the lines of comparative costs; it fixed tariff rates in the light of relative costs of production, and finally when the industries had developed their comparative advantage in the proper and contemplated measure protection was abolished.

There is a case for pausing before the adoption of the rather crude methods of restriction that have been proposed. When, and if, there are signs that a plethora of foreign capital is being attracted towards India, it will be time for us to think of imposing conditions on it and it will comply with them in its own interest. But as it is, our demand for foreign capital for our industrial capital is enormous and the stream of foreign capital towards us is becoming smaller with political and other troubles. The competition of foreign capital would lighten the burden of protection on our consumer, would shorten the period of infancy of our industry and would give us the much coveted industrial organisation and environment.

Artificial remedies of nationalizing or keeping out foreign capital have never been successful. A reference to the investigations of authors like Grunzel on the subject shows that restrictions on foreign capital do not meet with the approval of even protectionist economists. There are cases of course, where legislation might be conceivably necessary to prevent exploitation by foreign capital or enterprise. There is the case where foreign enterprise has formed itself into a monopoly, is exploiting the consumer and is closing the opportunities of competition to local producers by means of unfair devices. But so long as foreign enterprise maintains competitive conditions and the proper plane of competition there can be no question of exploitation by foreign capital. The fear of such exploitation is only the reminiscence of bygone conditions when Indian capital was inert and Indian enterprise was non-existent. At such period no doubt it was easy for foreign enterprise and capital to assume monopolistic powers and exploit the country. But such conditions have passed away and we must not sacrifice our present national advantage for the sake of recollections of the past. There was also a time when foreign capital assisted by political favours might have thought of exploiting a country, but with the growth of

political autonomy there can be no reasonable suspicion of any such state of affairs.

Finally we must remember that the Indian is the natural heir of all foreign enterprise and capital. The foreigner when retiring must needs sell his securities and they are thus transferred automatically into Indian hands. Thus in many jute mills of Calcutta more than 50 per cent. of the shares are by now in Indian hands in spite of the proverbial Scotch clannishness and with anything like reasonable enterprise we should have acquired the predominant interest in the direction of the industry.

The majority of the Commission has most justly condemned the historical origin of the cotton excise. It was imposed by a powerful rival on a struggling infant competitor. There was no excuse in free trade theory for the duty in those days, since it is no necessary part of that theory that every modest revenue duty should be necessarily counterbalanced by an excise. Moreover, the infant industry argument is entirely compatible with free trade theory and the incidental protection afforded by a 5 per cent. import duty was the least that an infant industry could expect as support.

But we must not mix up an old historical situation with the greatly altered situation of the present and we must consider the present excise duty on its merits. The majority had entire justice to the domestic producer by advocating for him such protection as the Tariff Board might recommend. The question of excise duty according to them arose only when an additional import duty was put on for revenue purposes. And even then the excise duty was not to be equal to this additional import duty but was to be smaller in amount. It is difficult to see how the excise duty levied under such a scheme could injure the development of any local industry. This majority scheme is in fact much more favourable to the domestic industry than the Japanese scheme. Under that scheme protection is granted to industry and then if further import duties are levied on an article for revenue purposes an *equivalent* excise is imposed upon domestic production. Let us take an example to illustrate the scheme of the majority. Suppose an industry requires and obtains a protection of 15 per cent. Suppose further that for revenue purposes an additional amount has to be obtained by the taxation of the article. The choice might conceivably lie between an extra import duty of say 15 per cent. on the one hand and an import duty of 10 per cent. accompanied by an excise duty of say 5 per cent. Strong considerations present themselves in favour of this latter course. *Ex hypothesi* the protection required was only 15 per cent. and a 30 per cent. duty would give over protection to the industry with its manifold evils and temptations which are well-recognized by economists. Moreover the 30 per cent. duty would raise the price of the foreign import to the domestic consumer unnecessarily high. It will also raise the prices of competing domestic products and substitutes. Consequently the domestic consumer is harmed while the producer obtains an unnecessary amount of bounty. Such over-protection is not very beneficial to domestic production as a whole and leads to stagnation since it

removes all motive for improvement and for avoiding antiquated and backward methods of production. Again the minority is wrong in asserting that financial authorities would limit the employment of excise duties to the case of deleterious drugs and drink as Pierson would have argued. Each excise duty is to be judged on its own merits. Again the majority did not consider it any part of its duty to tie the hands of the Assembly as regards the use of industrial taxation. If the Indian legislature abolishes an excise duty it must first consider from what classes the lost revenue can be recouped and it will further consider the comparative tax-bearing capacity of these latter classes, especially after some of them have been adversely affected by the action of protection.

It might be asked "what was the value of a protectionist system which was discriminating and hedged round by qualifications"? To that the answer is that all fiscal policy must work under proper qualifications and on the right lines. Professor Marshall had drawn attention to the "cumbrous qualifications" of the free trade position. And it has to be remembered that as a policy free trade is simplicity itself compared to any legitimate scheme of protectionist policy for any given country. An efficient system of protection is a detailed and delicate affair and not a matter of easy shibboleths or of facile dogmatism.

**At this stage of the Proceedings the Conference adjourned from the Town Hall to the University Library.**

## DISCRIMINATING PROTECTION.

By T. K. DURAISWAMI AIYER, ESQ., MADRAS.

(In the absence of the author, this paper was read by Professor Myles, Hon. Local Secretary).

It is now some time since the Report was published and considerable comment has already been made in India and England. Fiscal policy is a subject that has been receiving considerable attention since the termination of the recent war and tariff walls have been and are being raised in various countries like Spain and U. S. A. with a view to keep out imports. Even in England where there is a tradition of free trade measures had to be adopted like the Safeguarding of Industries Act which free traders will be hard put to it to justify.

The discorded condition of the Continental exchanges added to the feverish desire of most countries to secure foreign markets and the determination to keep their home markets from foreign competition explain the rage for tariffs. The view that the course of trade should be left to its own devices and that the interference of Governments will only lead to the worsening of the situation has not for some years received whole-hearted support even in England and now the resources of English statesmanship are directed to the problem of devising measures for the development on a large scale of Inter-Imperial trade. In India for long years there has been a strong public opinion in favour of the policy of protection. The foremost English economists of the present day like Marshall and Pigou accept that the position taken up by the English economists of an earlier generation on free trade was unscientific. They admit that backward countries containing rich undeveloped resources and a population not sufficiently trained in mechanical pursuits may with advantage depart from the policy of strict free trade.

The soreness of Indian feeling on the matter is due to the fact that in the adoption of Indian tariff policy sufficient recognition was not given to the material difference in economic conditions between England and India. Without further preface I will pass on to consider the main recommendation of the Report.

The Report is in favour of discriminating protection. Its implications are : (1) that the industry possesses natural advantages, (2) that without protection the industry can develop not at all or not so rapidly as is desirable, (3) that eventually it will be able to face world competition without protection.

Two well defined lines of criticism have been directed against these recommendations. The Press in England and her businessmen and politicians are against the above recommendations, pointing out that discriminating protection is all the same protection and the inevitable result in high prices will affect the consumer whose poverty is proverbial. The dissenting minute that finds fault with the recommendation as a halting and a vague one and as not far reaching enough represents the prevalent Indian view.

In this connection it will be pertinent to remark that thus far in the history of British India Indian opinion has not had decisive weight in the determination of tariff policy. Largely for this reason the implications of protection and free trade have not been thoroughly gone into and an exhaustive examination of all the consequences good and evil has not been undertaken by Indian students and publicists.

Just as the Reform Act of 1919 transferring as it did to Indian hands the determination of policy in some of the spheres of Government brought to the surface differences of opinion which had lain submerged till the hand led to the formation of parties or groups based on such differences, so the probability amounting perhaps to certainty that Indian opinion henceforward will have decisive weight in the moulding of Indian tariff policy may lead to the emergence among Indians of differing points of view.

Let us discuss in the dry light of economics the main recommendation. Those who urge that discriminating protection as the Report has defined it will not lead to the rapid industrialisation of India call for the removal of the safeguards provided for in the Report. They urge that these limitations will retard industrial progress and since protection is called for with a view to inspire confidence in the capitalists such a half-hearted scheme will not realise the intended aim.

English criticism against the recommendation takes the line that prices will rise to the detriment of the consumer and underneath the recommendation English critics detect a conspiracy on the part of the capitalists and the manufacturers against the masses. The middle classes, *i.e.*, the educated section being doctrinaire and out of touch with the realities of industrial and commercial life, is said to be playing into the hands of the capitalists.

While the Report is for discriminating protection those who wrote the dissenting minute should not be called unfettered protectionists because they concede that the consumer suffers in the initial stages. The plea of unfettered protectionists is that from the beginning of protection there is no loss. They talk of new outlets for capital and labour and a home market near by for the agriculturist. The dissenting minute does not take up that line. The point urged in it is that protection hedged in with the conditions laid down in the Report will not bring about the rapid industrialisation that they desire. The dissenters do not give any convincing reasons for the position they take up. They urge that every protectionist country applies protection with discrimination. The history of protection in various countries however gives evidence of indiscriminate protection. The fact is that a policy of protection acts on the nerves of the manufacturers in most lines and also on agriculturists, and industries suited and unsuited call for protection. The inevitable compromises that characterise public life and the conditions that surround the passing of the bills through the legislature result in protection being granted to industries all and sundry. It is because protection is given to industries which are not suited to the country that later on utmost difficulty is felt in the matter of removing

the duties. So much for the dissenting views that in every country there is only discriminating protection. Again they find fault with the absence of faith disclosed in the statement in the Report that "India for many years to come is likely to concentrate on the simpler forms of manufactured goods." The dissenters are not fair in this respect. It is not a fact that those from whom they differ do not want that India should succeed in manufacturing complex machinery. On the other hand they feel that granted the natural resources of the country, and the agricultural bent of the population, and the temperament and traditions of the workers and the middle classes, for many years India cannot afford to compete with countries like England, United States of America, Germany, Belgium, etc., in the turning out of complex products. Those who think in this strain do not deserve condemnation. As a matter of fact even countries like France and Italy whose industrial organisation cannot be considered backward have not succeeded in those lines.

You have after all to reckon with distinct aptitudes and the specific genius of different peoples. The French are supreme in lines that call for delicacy of taste and subtlety of motive. Besides the statement referred to is an expression of opinion which is not unwarranted by the facts of the situation.

If we take stock of our resources and deficiencies it will be plain that for many years India is not likely to produce complex forms of manufactured goods. Coal, iron, hydro-electric power, large capital, labour efficient and mechanically trained, an intelligent class of foremen, capable technicians, inventors of processes and bold captains of industry are necessary for successfully establishing complex manufacturing industries.

Though we have plenty of coal resources the quality of our coal is not very high nor the quantity to be compared with that of England or America. In fact last year India imported foreign coal to the extent of nearly  $1\frac{1}{2}$  million tons.

As for our labour the Report of Ainscough on British Trade with India for 1921-22 says that increased wages for coal miners resulted not in their improving their conditions of life and their efficiency but in increasing idleness. The output of coal per head of the miners fell from 111.1 tons per head in 1919 to 94.4 tons in 1920 and was probably less in 1921. It is such labour that has to be trained in mechanical pursuits and rendered quite efficient. As for iron it is true that we have plenty of high grade iron ore in Bihar and Orissa. In quality and quantity the hematite iron deposits of Bengal compare favourably with the huge American deposits in the Lake Superior region. A number of iron and steel companies are springing up and foreign capital and enterprise is flowing into the business. It is estimated that when all the companies which are being started will be in working order the output will be  $1\frac{1}{2}$  million tons of pig iron and 1 million tons of steel. The figures for the United Kingdom of the production of pig iron and steel for 1920 are 8 million tons and 9 million tons respectively. Our resources in iron are



really large. In iron and steel production the competition India will have to face will however be very intense. Ainscough in his latest report says that combinations and amalgamations among steel producers are the order of the day in all parts of the world. The United States imposed a 100 per cent. duty on imports of English steel and in course of time was able to bring down her price to the British level. Our iron and steel industry will have an era of rapid advance under protection. At the same time for a good many years it will be impossible for us to organise the production of very complex manufactured goods like say motor cars. As for technicians and foremen that is a serious deficiency which will take some time for removal. The purely literary type of education that has prevailed till now is largely responsible for this. Without a large class of engineers and foremen modern industry cannot be carried on with success. There is ample field for recruitment if we are in right earnest about industrial progress and the general good of the country. The Industrial Commission report says: "It is not in manual skill, if they care to acquire it, or in the capacity for understanding technical problems that the castes which have in the past sought knowledge rather than commercial success are deficient". The problem of the unemployed educated class victims to the literary type of education is engaging the anxious attention of the authorities in Bengal at present. In Madras also there are increasing numbers of educated people with the accustomed careers closed to them on account mainly of their increasing numbers and the financial situation. They should not be left to their own devices. Such a policy is dangerous to the state and inimical to economic progress. The ministers of development and education may take up this problem and by laying the foundations of a satisfactory solution add to the economic strength of the country. In view of the additional reason that protection will adversely affect the middle classes more than any other class it is incumbent on the state to devise measures with a view to keep them as useful citizens of the state. The investigation of hydro-electric power schemes is not likely to be pushed forward on account of paucity of funds for some considerable time to come by the ministers of development in the provinces to whose charge such work has been transferred. From the foregoing remarks it will be seen that for a long time to come we will not be in a position to produce complex manufactured goods unless insufferably high protective tariffs are imposed which is out of the question.

There are also difficulties in the way of discriminating protection. Mistakes should not be made in the selection of the industries, and it is not always that you can avoid making mistakes. One of the safeguards is that the industries should be able ultimately to face world competition without protection. How can any Tariff Board, however perfect might be its constitution, foresee the difficulties that will arise as an industry develops and the degree of success that will attend the overcoming of those difficulties? How can the Tariff Board foresee the new processes that will be evolved in the industry in the different countries thus giving a special advantage to one country over another? Instances are not wanting to illustrate my point. Speaking of the domestic price of

steel in the United States of America being brought down to a level as low as the British price, Taussig says " moreover in Germany as in the United States these results came about in unexpected ways and in consequence of technical improvements whose effect had not been foreseen. What the Bessemer process proved to be for the iron trade of the United States, the Thomas Gilchrist (or basic) process proved for that of Germany. The basic process had just been perfected at the time when the protective tariff of 1879 was enacted ; but the leading German iron master then declared that it proved of no advantage to his country's industry."

The condition that the industry selected should be able ultimately to meet world competition is necessary. But one should not disguise from oneself the difficulty of withdrawing protection even when the test is ultimately satisfied. Taussig says in this connection " It happens however that there is always the most violent opposition to the application of this, the sole decisive test. In the same breath we are told that prices have been brought down and a flourishing industry has been brought to maturity, and also that the duties must by no means be touched." Even when the protected manufactures fall to such an extent in price that they figure in the export trade of a country thus showing that there is no further need of protection the manufacturers concerned raise a hue and cry against the abolition of high duties. This attitude is accounted for thus : " The main explanation probably is the general state of trepidation engendered by a long continued policy of protection, the constant proclaiming of the danger of foreign competition, and the parading of the pauper labour argument which always seems to strike a chill of terror into employees as well as employed."

One of the advantages claimed for discriminating protection in the Report is that it will restrict the rise in prices. The rise in prices is the consideration that has been urged forcibly by most British critics against even discriminating protection. They say, and the commissioners are not unmindful of it, that the consumer in India especially the agricultural masses are living in such poverty that they have barely any margin. Under these circumstances any rise in prices that is bound to come as a result of protective duties will adversely affect them. Consequently they say protection is quite unsuited to India. The answer to that is a policy of aggressive free trade has not been incompatible with the wretched condition of the peasantry, and in view of the advantages claimed for protection in the Report the contention of the English critics is not decisive.

It is true that other things remaining the same under protective duties there is a less profitable employment of labour and capital than under free trade. The real income of the country as a whole may therefore be said to diminish. This diminution which will become progressively less as the industry develops profitably exploiting the natural advantages that it possesses is the loss that the country adopting protection has to face. But in India on the other side of the account must be mentioned the development of productive power due to the expansion of the industries. The agricultural industry moreover is over-stocked

and the surplus instead of emigrating to countries like Guiana, etc., may be absorbed in the industries. I am aware of the argument that the remedy for the agricultural depression is the adoption of better methods of cultivation, the constitution of economic holdings, etc., and not the dubious expedient of protection. The relation between agricultural progress and protection will be considered below. Bold and enterprising capitalists will be prepared to come forward with their funds to start industries under protection. The development of industries will be taken up with more zest than the expansion of agriculture. The appetite of the capitalist is whetted by the scope for the expansion of industries while he is not equally prepared to use his capital for agricultural progress since profits in his opinion are not likely to be as great in agriculture.

On all hands the present condition of India depending for the livelihood of 70 per cent. of its population on agriculture is not considered satisfactory. The development of a many-sided and vigorous national character, the mitigation of the effects of famines, the scope for the investment of capital and the growth of general wealth have been urged in the Report as justifying their recommendations. While dealing with prices under protection regard must be paid to the character of the articles against which India will require protection. The Report rightly says that raw materials ought not to be taxed and as an ideal partly manufactured articles being the raw materials for finished industries should not be taxed. So our tariff will have to be designed largely to keep out manufactured goods and these constitute 70 and 80 per cent. of our imports. In this connection the following observations are significant. "A duty on a manufactured product commonly is either so high as to keep out all imports, or so low as to admit all and thusto be in effect merely a revenue duty. True, imports often appear to continue, and a division of the supply between domestic and foreign quotas often appears to be brought about. But the appearance is deceptive; the two sets of goods on examination prove to differ in quality, or to be for other reasons not in reality competitive." A duty on raw materials is more likely to be competitive. The reason for this difference between the products of manufactures and of extractive industries is that the latter are under the operation of the law of diminishing returns whereas manufactured products are likely to be produced under conditions of uniform cost or increasing returns. So the division of the market between foreign and domestic producers is not so likely in manufactured goods. In the light of these considerations one can see how the duty on manufactured goods to be effective must be fairly high almost prohibitive. The general poverty of the country may be said to militate against heavy duties on goods leading to high prices. It is therefore incumbent on the state to adopt discriminating protection, *i. e.*, to levy duties on selected commodities only and not to precipitate a heavy increase in general prices by adopting protection for various industries. It will be plain from the foregoing remarks that the poverty of the agricultural population is a grim fact that faces us in our schemes of development. Argue how you will there is not much chance for protection without improving the standard of life of the agricultural

classes. It has been too long neglected and industrialists must realise that the best way of creating favourable conditions for manufactures is by rapidly pushing onward agricultural improvement. The problem has to be viewed as a whole. Our going in for protection necessitates the devotion of large funds to the vigorous prosecution of agricultural improvements. The agriculturist will be induced to improve his standard only when education becomes general. I hold this to be important because unless you broaden his outlook you will not succeed in making him improve his standard.

Sober criticism will grant that protective duties alone will not bring about industrial prosperity. As a matter of fact the industrial advance of Germany and the United States has been rendered possible more by other factors than protection. The magnificent natural resources in coal and iron in particular, a highly efficient scheme of technical and commercial education, the mechanical aptitudes of the general population, the genius of inventors and above all the boldness, judgment and enterprise of the captains of industry, explain in the main the progress of those countries. It cannot however be asserted that protection did not exercise any beneficial influence on the industrial development of those countries. In the United States protection for iron and steel was among other causes responsible for the large profits made by iron masters which profits were again invested in business with the result there was very rapid expansion in the industry. It is doubtful if without protection such rapid progress would have been attained.

The Report says that in case an industry does not fulfil the expectation on which protection was granted, the Tariff Board should be charged with the duty of recommending the withdrawal of protection. This is far from an easy affair. It is such industries that are mainly responsible for the view that if once protection is adopted, protection can never be overthrown. Evidently these are the industries in which the application of labour and capital is not comparatively effective. But capitalists would have made their investments and a labour force would have been trained to the work in the industry. As legislatures are constituted it will be an extraordinary thing if legislatures screw up their courage to withdraw protection from such industries.

Thus it will be found that there are risks attending the adoption of discriminating protection also but in the present state of Indian industries the risks must be faced and a scheme should be worked out by the Tariff Board in the best interests of the country.



## REPORT OF THE FISCAL COMMISSION.

BY B. G. BHATTNAGAR, ESQ., M.A., F.S.S., LECTURER IN ECONOMICS,  
UNIVERSITY OF ALLAHABAD.

It is needless for me to discuss within the purview of this paper the historical development of the fiscal policy of India, as it has been recently given to us in a masterly way by the members of the Fiscal Commission in their Report and by Dr. Pramathanath Banerjee in his book "The Fiscal Policy in India." However, to give us a historical basis we might in the words of Dr. Banerjee say that "The Fiscal History of India" divides itself into three fairly well defined periods. The first was the period of the East India Company's rule, when a protective policy was followed in the country. The protection was however in favour of Great Britain, and against India. The second period began with the transfer of the administration of India from the hands of the Company to those of the Crown (1858) and ended in 1914. These were the days during which the principles of free trade were applied with the greatest rigour. During both these periods England carried out in India her own trade policy. With what results? Well, one has to read the minute of dissent of Pt. Madan Mohan Malvia, to the Report of the Industrial Commission to find an adequate answer to this question. "The third period was ushered in with the sound of the war drum, and may be said to be still continuing. The financial stress caused by the great world upheaval led to some modification of the fiscal system of India, but the aftermath of the war has been responsible for the introduction of still greater changes into it. The customs duties of recent years have, it is true, been imposed for revenue purposes, but their protective tendency has, in a few cases, at least, been none the less marked. In fact, with the recognition on the part of the Joint Select Committee on Political Reforms in India of the right of India to decide her own fiscal policy, this period may be said to mark the transition from an absolute adherence to free trade principles to the adoption of a policy of protection."

It is equally unnecessary for me to enter into a theoretic discussion of the free trade and protective policies. The authors of the Fiscal Commission Report and Dr. Banerjee, have given us a very exhaustive study of the various arguments advanced by eminent writers like Fredrick List, Fredrick Bastiat, John Stuart Mill and many others, for and against these two policies. I cannot be accused of being partial to the one or the other if I say that all economic thinkers of note, whether free-traders like John Stuart Mill or protectionists like Fredrick List, maintain that the fiscal policy of a country should be relative to the circumstances of that country. Before deciding the line of action one must go deep into the condition of labour, the articles of imports and exports, and the nature of demand of the various commodities in and outside the country; unless these have been thoroughly gone into and analysed one cannot decide whether a country should adopt the policy

of protection or that of free trade. It augurs well therefore, for the industrial future of India that modern writers on the fiscal policy of India are trying to impress the relative character of these policies. The line of approach has been laid down for us in a very clear way indeed and I should think in a reasonable way too, both by the authors of the Fiscal Commission, and by Dr. Banerjee. Both of them try to impress upon us that these policies are very much like medicinal drugs on the absolute merits of which it is useless to pronounce any verdict, unless they are discussed with reference to some disease which itself has been thoroughly diagnosed. If the diagnosis of a patient leads us to the conclusion that it needs protection, we should give him protection; otherwise not. Doctors of tariff policy have laid it down for our general guidance that a country which is mainly agricultural should adopt a policy of free trade, so that by coming in contact with the better organisations of the outer world, it may learn things necessary for industrial development in other lines and initiate manufacturing industries on a capitalistic basis. When the stage of initiation is over the country should adopt the policy of protection. But protection should only be extended to those industries, which may have a sure prospect of development, and standing competition from foreign countries, when fully developed. They recommend this help as a temporary expedient only, and that to counteract the disadvantages of a late start. When this stage has been passed the country should revert to the Free-Trade Policy. As a general maxim to guide the fiscal policy of any country one could hardly take exception to the general policy recommended above. Even such a strong supporter of free trade as John Stuart Mill supports it in these words: "The superiority of one country over another in a branch of production often arises only from having begun it sooner. There may be no inherent advantages on one part, or disadvantage on the other, but only a present superiority of required skill or experience. A country which has this skill and experience to acquire may in other respects be better adapted to the production than those which were earlier in the field. Under these circumstances it is desirable to bear the burden of protection until the producers have been educated up to the level of those with whom the processes are traditional. A protecting duty continued for a reasonable time might sometimes be the least inconvenient mode in which the nation can tax itself for the support of such an experiment. But it is essential that the protection should be confined to cases in which there is good ground of assurance that the industry which it fosters will after a time be able to dispense with it."

With this theoretical background we may pass on at once to study the recommendations of the Fiscal Commission. Unfortunately the Commission are not unanimous in their recommendations, but to me the points of difference do not seem to be of any vital significance except in one case. The one point where they differ is really of vital importance and it is that while, the majority recommend the adoption of a policy of protection to be applied with discrimination along the lines indicated in their Report, the minority are of opinion that "there

should be an unqualified pronouncement that the fiscal policy best suited for India is 'Protection.' If to this main recommendation of the minority one of two other sentences out of their minute of dissent were added we will get some idea of their true position. Thus in paragraph 6 of their minute they say "while we agree that the policy of protection should be applied with discrimination we do not think that any qualifications or limitations should be made a condition precedent to its adoption. We recognise that in the efforts to attain a prominent position in the industrial world India will have to pay a price..... The discrimination with which we agree is intended to minimise such sacrifice as far as possible as consistently with reaching the goal which we are putting before the country. We do not subscribe to the condition that such discrimination should be 'along the lines of the Report.'"

The conditions laid down in Chapter VII appear to us to be stringent, and will entail considerable delay in giving effect to the policy which we have unanimously recommended, and will not produce adequate results. We share the concern shown in the Report for the interests of the consumer, and we agree that the policy should be applied in such a manner as to reduce the burden on the consumer to the minimum necessary for the purpose of carrying out the object in view. In the present economic condition of India, limitations in the interests of the consumers are necessary, but we anticipate that if immediate effect is given to the policy we recommend, India will begin to grow economically prosperous within a reasonable period of time. As one reads through the limitations laid down by the majority there seems to be no serious difference in the position taken up by the majority and the minority except that the minority would like to start on an intensive policy of protection at once, while the majority like the minority insist that Government should in order to create confidence in the minds of the capitalists declare protection as their policy, yet actual protection to individual industries should be given after due deliberation. Looking at the very little difference between the apparent position of the two sets of signatories of the Report it seems to me that the chief cause that makes the minority fight shy of the very reasonable limitations (purely from an economic point of view) laid down by the majority is to be found in the lingering fear that these limitations may not like so many other things in the past be used to defeat the object in view. In this connection the following words are significant "we have to make these observations in view of the statement made by our colleagues, *viz.*, that India for many years to come is likely to concentrate on the simpler forms of manufactured goods and these are precisely those in which the United Kingdom has the smallest interest." We earnestly trust that no such limitations will be placed in the path of India's Industrial Development. We have already pointed out that we disagree with our colleagues regarding their proposals to hedge in the policy of protection. We hope this has not been done with the object of keeping India to concentrate her industries on the manufacture of simpler forms of goods." It is on this assumption alone that one can explain the insistence of the minority on having no limitations laid down before hand. Looked at in the light of historical evidence in other depart



ments of politico-economic life in India the fear does not seem to be unjustified. But all the same if protection is to be adopted, and if it is to cause as little inconvenience to the consumer as possible then it should be cold and calculating in its character, as has been recommended by the majority when actually being applied to individual industries. But this does not mean that the whole policy should be rigid and inflexible, and herein comes the importance of the protest so strongly lodged by the minority because they are right when they recommend that the policy should be animated by warmth of feeling for the industrial regeneration of India, and not by the idea of how it is going to affect the interests of the United Kingdom. Such a consideration might have been good practical politics when India was ruled for the sake of the United Kingdom; but during these days when she is said to have got her Fiscal Freedom, and when the declared goal is to train her for Swaraj it seems to be out of place, and an unpractical sentiment on our part. But we have to remember that India is yet not perfectly free, that British interests can yet, if they chose to do so, create lot of mischief in the working of the Indian constitution, and perhaps it was the realisation of things as they are that has led the majority to show so much solicitude for the interests of the United Kingdom, may be just to placate the sentiment of self-interest of the British manufacturer. Be it as it may, as a student of Economics I for one believe that the majority did well in laying down the limitations under which protection should be worked in India, but they seem to have overdone their part and the minority although unjustified in going to the other extreme of having no limitations whatever have also rendered a public service by insisting on the liberal spirit in which the protective policy should be worked. If one has supplied the physical structure, the other has infused the right spirit that ought to animate the whole policy.

So much about the difference of principle, we may now study the outlines of the scheme of protection as given to us by the Commission. They recommend a tariff that "will be a combination of revenue and protective duties. The existing tariff will form the basis of revenue duties and will become progressively modified as the duties on particular commodities are successively determined on protective principles. A duty that has been fixed on protecting principles should not be varied except in accordance with those principles. And the duties imposed on revenue considerations should be open to the Government to vary from time to time on purely revenue considerations.....It is possible indeed that the necessities of revenue may force the Government to put a higher import duty on certain protected goods than is required for purpose of protection. We deal with such a contingency in a later chapter when we recommend that in such cases revenue should be raised by means of an excise duty plus an additional import duty." Referring to this Mr. C. N. Vakil, in the Journal of the Indian Economic Society, Bombay, page 157, in a depreciatory tone remarks: "But we have not yet heard of countries which divide the tariff into two clearly defined parts one part consisting of revenue duties another of protective duties, and this is the ideal put forward by the majority for the Government

of India to follow. With regard to one part of their tariff the Government is asked to think strictly on free trade principles, with regard to another part they will have to think on the principles of discriminating protection on the lines indicated in the Report. The task of watching the details of this complicated and highly unpractical scheme is to be entrusted to an impartial organisation, the Tariff Board." To me there seems to be no difficulty in having such a twofold classification, and if we were to study the fiscal arrangements of different countries we would find such a classification maintained in practice, though it may not be mentioned in the constitution in so many words. Such a classification would be absent from the tariff policy of a country which is indiscriminately protectionist in its policy. If protection is to be discriminate (it may not be discriminate exactly on the lines indicated in the report of the majority), then such a classification as is recommended by the majority is bound to make its appearance in actual practice. The fact that Mr. Vakil finds fault with a recommendation like that, only means that we have still in India a large majority of people who are as it were in love with protection, and to whom any qualifications, however much reasonable in themselves, appear like a red rag to a bull.

Then the Commission pass on to recommend the creation of the Tariff Board, whose business will be to adjudicate cases referred to it for granting protection. They also lay down general principles for the guidance of the Board. Some of these general principles are unexceptionable but there are points where it is not difficult to differ. Thus while they object to "granting tariff protection to new industries" or industries which supply only a small percentage of the total supply necessary to satisfy the demand of the country, I fail to agree as in an industrially backward country like India, with very good prospects for the development of many industries that do not exist at present such a qualification would have a very hindering effect. It is rather unfortunate that the Commission should have anticipated those details which they themselves have recommended for the Tariff Board to investigate before recommending protection to individual industries. This anticipation becomes doubly unfortunate as they insist on protection being adopted in India on condition that it is worked on lines suggested in their Report. Although they realise that in order to decide the question, whether a particular industry should have protection or not it requires a very minute investigation, yet they have allowed themselves to express their opinions this way or that without sifting all the details. It is when one reads through the lines on which protection should be worked in India, that the real nature of the objection of the minority that "it mixes up policy with procedure" becomes intelligible.

However, leaving these matters of detail apart with the above general observation, we notice with pleasure one important point which has not so far received serious recognition from the students of Indian Economic problems. While discussing the methods of agricultural development in India in his booklet "The Consolidation of Agricultural Holdings in U. P.," Professor Jevons after discussing various measures of reforms remarks that "I wish to record my opinion that it is almost

useless to undertake these measures piecemeal. The forces of degeneration are so strong.....that each measure of reform would be successively defeated. Far better results would be obtained by making a combination of agricultural and educational reforms in one district at a time." It is this principle of an all round effort which the Fiscal Commission have done well to emphasise in those words. "But it is clear that the mere imposition of protective duties, however scientifically contrived will not by itself produce that full industrial development which we desire." In recognition of this fact they recommend a number of supplementary measures, such as : "(1) the extension of primary education, which should include training, (2) the training of apprentices in India, and abroad by making it a condition that whenever Government of India place any large order with a firm one of the condition of the tender should be that the firm undertakes to afford facilities for technical training to Indian apprentices, (3) organisations to make labour more mobile, (4) the modification of the railway rate policy to make it favourable to the industrial development of India, and others of the same kind."

Another important fact that the Commission have done well in emphasising is where they try to impress upon us that protection does not only mean high import duties. It is after all a policy, and the policy may be translated into practice either by high import duties or by protective export duties, or by subsidies and bounties, or by favourable rates of carriage, or yet by right of favourable rates of purchasing and selling and in many more ways. Whether one will be adopted or the other will be decided by the circumstances of each individual case, and the only general principle that could be laid down in the words of the Commission being "that considerations of national economics rather than of economics of individual industries should predominate in all such cases."

Before passing to the consideration of such relatively independent items as the questions of excise duties, and Imperial Preference, I consider it desirable to discuss the use of export duties as an instrument of protection.

Although the Commission admit that a protective export duty benefits the home manufacturer by getting for him his raw material at a lower cost than his rivals abroad, yet they do not wholeheartedly support the idea of using this method of giving protection because "unlike protective import duty an export duty places the whole foreign product at a disadvantage" and this "tends to produce a special feeling or resentment in those countries which use the commodity as raw material," and "because it taxes production instead of consumption." Now both of these considerations are weighty, although personally I am not inclined to attach much weight to the idea of offending other countries, yet one has to admit that if a foreign country buys a very large quantity of a raw material produced in India and if we want to levy an export duty on it, we should do so after thinking as they say twice. Once we should think on the share of that country in the total produce, and secondly on the chances of India's capacity to consume the raw

material if the foreign country diminishes its demand. Here as elsewhere the actual line of action should be decided in terms of national development rather than in terms of goodwill of this or that country be it even such an important country as Great Britain itself.

We can now conveniently take up the question of excise duties, and at once say that while I agree with the general conclusions of the Commission as regards excise duties, I am inclined to say that excise duties should not be levied on things the production of which is receiving protection. The Commission recommend such a policy for revenue purposes only. On this the writer in the *Journal of the Indian Economic Society*, Bombay, already quoted remarks that "whether this is the outcome of a genuine rigid adherence to free trade principles, or of a skilfully concealed sympathy for the interests of Lancashire it is difficult to say. It is evident, however, that the Indian Fiscal Commission was not considering Indian interests and Indian opinion in devising this otherwise ingenious proposal." And there is lot of truth in what he says.

Both the majority and the minority are of opinion that from a purely economic point of view adoption of the policy of Imperial Preference is not tenable in India. But the majority after taking into consideration larger considerations of political solidarity, and growth of Empire spirit recommend that India should offer to Great Britain an unqualified preference, while towards dominions she should adopt "a policy of reciprocity, such as is already adopted by more than one dominion for interdominion trade relations; that is to say preference should be granted only as the result of agreements which might prove to the mutual advantage of both parties." To me the question of Imperial Preference apart from reciprocity is a purely political one, which it is difficult for a cold and calculating student of economics to pronounce any judgment upon and which should be left to the free voice of the Indian political leaders, *i.e.*, the two legislatures.

#### FOREIGN CAPITAL.

While agreeing with the majority that "the development of new industries should proceed as quickly as possible," so as to cause the minimum of sacrifice to the consumer, I fail to agree with them when they seem to think that this cannot be done unless foreign capital is allowed to come in, and this for two reasons. First of all recent loans raised by the Government of India and the response they have received from the public should be able to tell us that there is an appreciable quantity of floating capital seeking investment. Secondly we should remember that there are ways and ways of securing foreign capital for the industrial development of a country. To begin with we may secure it by allowing foreign domiciled companies to invest their capital here. Capital would be invested in India, but its influence on the prosperity of the land under the condition of protection would be worse than what we see now in the case of railway and the jute industry under the free trade policy. The consumers would have paid in higher prices, and the profits would then as now go out of the country. Then there is the

way that people, with capital may come here from foreign countries, invest it in the development of industries and may live here permanently. There could be no objection to an investment of this sort, provided these people had the right sort of political outlook. If after coming to India, sympathy and feelings of these people remain fixed in their distant homes, and express themselves in preference for foreign labour, in diffidence to train Indian labour, and so on then certainly the country of their adoption is not likely to get real benefit of industrial development brought about by their aid. To me, however, the best way to secure foreign capital is none of these nor is it that which has been suggested by the Commission, but that of national borrowing through the Imperial Bank in foreign countries, and then its lending to prospective industrialists in India through the same agency. Credit of the Government of India is fairly high in money markets of the world and we should be able to secure fairly large amounts of capital necessary for the development of industries in this land. But the Government should not undertake any other responsibility in this matter except that of lending its credit to the Bank, and the Bank should do all other matters of detail. Industrial Banking is the most complicated part of the most complicated business of the world—I mean banking, and no Government with its other multifarious duties should undertake this difficult task.

We have now come to the close of our review of the Report of the Fiscal Commission and leaving sentiment apart, we feel impelled to say that taking all in all the recommendations of the Commission seem to be inspired with a due sense of things practical. It is all very well to feel strongly when we are asked to subordinate our line of policy to the interests of the ruling race, it is equally easy to indulge in strong sentiments but it is very very difficult indeed to secure your point in the face of strong and dominant clashing interests. The majority have no doubt indulged in persuasive and in some places apologetic language but the reason that seems to have led them to use that language may be found in their desire to win over the sympathy of the dominant race, rather than in any desire to subordinate the interests of the Indian people to those of the people of Great Britain. The fact is there that so far it is the British who are dominant in India, and they can, if they feel inclined, defeat any and all measures of reform, be they in our tariff policy or our currency system or in any other department of life, and by taking stock of this patent fact the majority have only given us an evidence of their being alive to the facts as they are. Why think ill of them, why impute motives where there seem to be none?

FIRST DAY: - TUESDAY, JANUARY 16th 1923, AFTERNOON SESSION

## INDIAN TARIFF REFORM.

• The Fiscal Commission.

Need for Protection.

BY C. GOPAL MENON, ESQ., F. C. I., A. I. B., MADRAS.

(In the absence of the author, this paper was read by Mr. J. Leitch Wilson.)

An impartial observer of the signs of the times cannot fail to be struck with one idea concerning the findings of the Fiscal Commission, viz., the country's decision in favour of protection. The subject of tariff reform is of national importance at the present moment. It is, moreover, of absorbing interest and the issues, though of a complex nature, are of such paramount importance that they demand long and thoughtful study before any definite conclusions can be arrived at. It is to be deplored that an economic problem affecting the future welfare of our country should have received so little attention on the part of the public. When the Montford Reform Bill was issued, people rushed to express their opinion as to the merits or demerits of the reforms vouchsafed to the Indian public but that tariff reform which is going to be put into operation before very long should have received so little attention may be due to the fact that high finance is the *'bête noire'* of the public. There is no doubt that the present tariff reform is a subject which requires calm and judicious inquiry, for adjudication by those who have made a study of politico-economic science, substantiated, of course, by practical experience. In any of the western countries such a measure will have caused much political excitement and party strife. It would even be made the subject on which a future election will be conducted. The tariff reform is one of those bloodless revolutions which often take place now and then in the history of every nation and which are often more far-reaching in their effects than many of the longest and most expensive of wars have been.

### THE COMMISSIONERS' FINDINGS.

The Commission was asked "to examine with reference to all the interests concerned the tariff policy of the Government of India, including the question of the desirability of adopting the principle of imperial preference and to make recommendations." The finding arrived at is that "we recommend in the best interests of India the adoption of a policy of protection to be applied with discrimination along the lines indicated in this Report." The Report is signed by all the members subject to a minute of dissent by the five members including the president. The minority's verdict is that "there should be an unqualified pronouncement that the fiscal policy best suited for India is protection."

The sentiment underlying the view expressed by the Minority

Report is no reaction against free trade but is only an evidence of the feeling in the country that she should devote her attention to intense industrialism. This may be ascertainable from the evidence given before the commission by all those who are interested in any industry in the country. They all unanimously expressed their opinion that a certain amount of protection is needed for the development of the industries in which they are interested to meet and to protect them from undue competition from the outside world where similar articles are produced under highly organised conditions. Those who favour this view have a very strong argument in the present rapid growth of such protectionist countries, as America, Germany and the self-governing colonies. In the western countries there are even to-day two schools of thought on the subject.

### ENGLISH POLICY IN THE PAST.

England had been a protectionist country for hundreds of years. The trade of England and indeed nearly of all other countries was conducted under what was known as the "Mercantile System." Under this system, each country took steps to get as much gold and silver as possible and all expedients were resorted to in order to prevent their removal from the country. This fiscal policy, though it was a policy of protection, differed from the policy proposed by modern tariff reformers. It was not intended as much as a protection of the trade of the country, but as a protection of their gold supply. At the present day the gold of any country is not protected in this manner, but by an entirely different method; *viz.*, by the action of the discount rate fixed by the prominent bank in their respective countries. The mercantile system prevailed in the European countries until the beginning of the nineteenth century. In England during this period some 1,300 articles came to be included in the customs list and the duties upon very many of them were almost or entirely prohibitive. The Corn Laws in England were dated from the year 1360 and a case for reform was brought up several times, but it was not until 1836, a few of the radicals banded themselves with the avowed object of securing the repeal of the Corn Laws. In 1838 an association was formed in Manchester at the instance of Richard Cobden, who not only devoted all his time for the work but was also able to bring to his band his friend John Bright of Rochdale whose superb eloquence convinced people of the evils of the system. One of Cobden's predictions for the abolition of Corn Laws was that "if England abolish Corn Laws honestly and adopt free trade in its simplicity there will not be a tariff in Europe that will not be changed in less than five years to follow your example." This prediction was not fulfilled as it did not suit other countries to adopt England's method chiefly due to the difference of circumstances and interested opposition. Such is pure history and it is from the past that the present should take lessons and apply them to practical needs keeping in view one's own capacity. A certain section of economists avow that England gained her supremacy during the days of her portec-

tionist policy, and not since the time she adopted her present so-called free trade policy. It is a difficult problem to answer, because, it is difficult to judge the exact influence of all the contributory clauses to England's present commercial and financial supremacy. There is another argument that England did not give up protection until her industries had reached that state of proficiency when they were independent of protection.

### REACTION AGAINST FREE TRADE.

With all the talk of a "dogmatic" free trade policy of England, do we not observe her favouring occasionally a policy of retaliation in the tariff system and those who advocated this policy undoubtedly have a very strong argument in the rapid growth of the protectionist countries? Did not the late Joseph Chamberlain in 1903 astonish the world by proposing the adoption of preferential trading between the mother country and the colonies as the only means of keeping the mighty Empire together? The question received the serious attention and was discussed vigorously in every circle of the community in England, from the ministers of the Crown to the man in the street. The subject took such a turn as to involve a conflict between Free Trade and Protection. Chamberlain wanted to work up an Imperial Zollverein, after the example of the German Empire and the United States, with free trade within the Empire and a common protective tariff against the outside world. These are all examples of what a country would do when trade is being imperilled from foreign competition and there is nothing strange in India desiring to shape her tariff policy with a view to protect her industries and commerce. This is what the Minority Report of the Fiscal Commission have in view when they pronounced that they want a definite policy of protection and not any half-hearted measure as is conveyed in the Report of the Commissioners as a whole. The motive of the minority is not a reaction against free trade policy but only one of self-preservation to make India a self-contained and self-sustaining country.

### INDIA'S RESOURCES.

It is necessary in a preliminary survey of this nature to define what resources India possesses for the task which she is going to undertake. The area of India is 1,760,000 square miles, with a population of about 300,000,000 of people. There are two clearly defined regions, which possess great varieties of soil and climate. The first is that comprising the plains watered by the great Himalayan rivers, the Indus, Ganges, and Brahmaputra with their tributaries. This huge plain is 1,700 miles across and includes the richest and most populous regions of India. The second great division is the Deccan which is enclosed on all sides by mountains. We have our monsoons; the South-West usually arrives at the end of June and lasts for about four months. It distributes rain over the whole of India, but very unequally, the regions favoured by most constant falls being



Eastern Bengal Assam, part of Central Provinces and the Malabar Coast. In the remaining provinces the rainfall is uncertain and droughts often occur. India, unlike other countries, has enormous potential but undeveloped wealth, agricultural, mineral and industrial. It has inexhaustible supplies of coal and iron, chrome iron, and manganese ore, copper, plumbago, lime, faolin, gypsum, asbestos, mica soft and hard, wheat, food grains of all description, oil seeds, tobacco, cocoa, sugar, coffee, tea, spices, dye, hemp, flax fibres of every description. Notwithstanding, she is the dumping ground of other nations. A little fostering protection will help some of these to be converted into manufactured articles, for which there are ample facilities in the country. The few industries which are in existence in India to-day are suffering from foreign competition owing to the dumping of foreign goods at a low price. India's principal industries are those engaged in the manufacture of cotton and jute products, leather, silk, wool, paper, sugar, indigo, tea, coffee and tobacco. Of these the leather, wool and paper industries, the bulk of them, are making no progress and are having only a hand to mouth living. The silk industry is practically losing ground. The only industry which comes into competition with England is the cotton industry and as India is Lancashire's best customer in cotton goods, the progress of the industry is being closely watched. Even here, it is only in grey goods she comes actively into competition with Lancashire. In the cotton industry apart from grey goods there are several other varieties which are needed in India, and I believe even if the excise duty is removed and protection is applied to this industry it will take a long time for Indian mills to come into competition with Lancashire in other varieties than grey goods. Space will not permit me to point out to what extent she could come into competition in cotton goods with Lancashire and how infinitesimally small that competition will be under natural and other conditions even if a small amount of protection is afforded.

### NEED FOR PROTECTION.

The tanning and leather industries should be prosperous under protection as there are large supplies of hides and skins and the necessary tanning materials in the country. Apart from exporting raw hides and skins, no attempt is made to convert these into tanned goods. Sugar, match and soap industries are all bound to succeed under protection. There is no doubt, lack of enterprise in the method of manufacture. Attempts should be made to avoid wastage in manufacturing and economy exercised in management. Otherwise protection will be at the expense of the poverty-stricken population.

Another aspect of the question is : Have we not heard of the competitions of such protectionist countries as Germany and the United States in the markets of the world ? The alarm was so great in some quarters in Britain as to make them feel as to the state of the future British industry. These alarmists gave out that it is not that the

British industry was declining, but the prosperity of the German and United States industries were developing in much greater proportion than British and this they attributed as due to the protectionist policy of those countries. These were at least the arguments brought forward by the late Mr. Chamberlain and his exponents of the theory of Imperial Federation for the British Empire. The old proposition that "what is true of one must be true of all," is repeated often as it was one hundred years ago. Free trade may be good to England, but may not be good for India and as conditions and circumstances change fiscal measures and tariff reforms have to be modelled to suit the conditions of each country.

### PROTECTION ALONE WILL NOT SUFFICE.

But protection alone cannot advance the industrial and commercial prosperity of a country. We want the technical skill and clever foremen and superintendents of workshops. Our technical educational system must be modified in order that our schools and colleges turn out technological experts who possess the adequate knowledge to conduct experiments in the factories and workshops. These are state-aids which the Government of the country should render for the development of industries. We must also have the enterprise and initiative: apart from big industries to be started, there are several minor industries which, with little enterprise and initiative, we can without much difficulty develop. We are as a nation sadly behind other nations in the matter of enterprise and initiative. In order that a country should become industrially great, we must possess the right sort of education. It is by the encouragement of science, by the technical training and by the diffusion of knowledge that the Government can best aid private enterprise. If people in the country now take advantage of the protection for industries which will be conceded shortly, we can reasonably hope to advance, both industrially and commercially so that we may attain the position which other nations have attained in the matter of industrial development. If, on the other hand, prompt steps are not taken for the realisation of the object in view of the present tariff reform, misery and hardship will result to the people owing to enhanced prices. The object of protection is to encourage home industries by the manipulation of a fiscal system and that will in turn raise home prices. If a temporary rise in prices did not take place, then the industries are not encouraged. This is a necessary evil in the initial stage of a protectionist measure but the people will eventually benefit by the industrial progress of the country. To achieve this object, says Mr. Armitage Smith, "the country will have to rely upon her skill, efficiency, business capacity and energy. She will need to be vigilant, skilful, enterprising and active to meet the desires of her customers at a reasonable price and anticipate their wants."



## INDUSTRIAL DEVELOPMENT AND INDUSTRIAL TRAINING.

BY PROFESSOR W. H. MYLES, M A UNIVERSITY OF THE PUNJAB.

Never has the question of the industrial development of India been more in the public eye than it is at the present time. The purpose of this paper is not to enter on the thorny question as to whether industrial development on Western lines would, or would not, be for the good of India, nor to enter on the still more debateable question as to whether that development, supposing the ideal to be admitted, would be best brought about by means of a policy of protection. It is rather to point out one essential condition of industrial development that does not, in most discussions upon the subject, seem to have received the attention due to it, and to put forward a scheme that in the writer's opinion must be adopted simultaneously with any policy of industrial development.

The economic student on his introduction to the theory of production and the conditions upon which the productivity of a nation depends, meets in the foreground of his study the three great agents of production—land, labour and capital. They are all of primary importance, but it is possible to lay too great stress upon the group. Later economists from Marshall onwards have laid more and more emphasis on "organization" as a distinct agent of production, and unless "capital" be given the widest interpretation so as to cover "immaterial" agents of production as well as the purely "material," this inclusion is essentially necessary. Many of the errors of the extreme individualist school arose from their omission of this very factor, though it is to be noted that Adam Smith, the master of individualism, is not open to the accusation, for he included "the natural and acquired abilities of a people" in the category of the fixed capital of the nation. List restored the human factor of production to its proper place, and it always seems to me that List's claim to fame is equally strong in this direction as in the better known sphere of fiscal policy. Yet Mill, writing with the work of List before him, was not able to shake himself altogether clear of the doctrines in this respect of his predecessors; it can hardly be said that Mill realised the fundamental importance of immaterial capital, or "organization" if you care to call it such, and much of his dread of diminishing return on the one hand, and over-population on the other, is attributable to this very fact.

Now in the University syllabuses of economic study in India Marshall finds a prominent place—too prominent it seems to me—and yet the salient fact of organization to which he attaches such importance does not seem to be fully realised. The omission is perhaps more regrettable in that it is the factor of production which is most lacking in our midst. We are all familiar with those analysis of the possibilities of production in India, which call attention to its boundless acres of land,

sometimes deficient in water, but which modern irrigation may cause to "blossom like the rose"; its abundant labour, which has often been spoken of as cheap, though India's own representative at Geneva declared emphatically that it was dear because of its inefficiency and its capital, being slowly unearthed from the hoards of earlier days, and taking advantage to an ever-increasing extent of the new facilities for investment. But in these analysis there is too often a tendency to skip over the immaterial agents of production, or to treat them as quite subsidiary. Now any one familiar with industrial life in the West knows that it depends for its very life-blood on its entrepreneurs or captains of industry. It is their organizing ability, their bold and restless enterprise, which waits not for assistance from the powers above, their power of predicting the future and producing to meet it without guarantees, their inventive genius and their constant juggling with the process of production so as to secure the maximum output with the minimum of cost—these, one and all, are fundamental in industrial development, and in India they are noticeable by their absence. The few individual exceptions that arise to the minds of all of us only serve to emphasise the crying need in this respect before India becomes a great industrial country.

Perhaps our educational system is partly responsible for the deficiency, but I personally feel that a change of outlook amongst our educated classes as to the relative value of the different professions must be the preliminary to change. Many of you here are University teachers. What is the aim of the average student who passes through your hands? I may be wrong in speaking thus of other Provinces, but in the Punjab the average student looks forward to Government service, to the Bar or to Teaching as a profession. Now without disparaging for one moment any one of these learned professions, you must admit that it is a sad feature if they are to draw off the pick of the brains of the country, and industry and commerce have to depend on those with more limited attainments. One thing that those whose ideal is the rapid industrial development of India should clearly realise is this—that if industry is to have a chance, it must be given its fair share of the very best brains in the country. Production in the narrow sense of the term must come to be regarded by our leaders of thought as an essentially honourable profession, as one to which their sons may go with credit, and as one which from the standpoint, both of the country and the individual, may be taken up with advantage.

While India was a country unknown to me except through books, and Japan was similarly unknown as it still is, I was much struck as a University teacher at home by the different outlook of Indian and Japanese students whom we had in about equal numbers. Both were there to get the best that the University could give, but their intention was to apply it differently. The Japanese student as often as not desired to return to his own country and go in for business in some of its many forms; the Indian student, on the other hand, no matter what else he was doing, seemed always to be reading for the Bar, and the sad feature is that on his return he too often takes the path of least resistance and

drifts into that profession which he took up largely as a side-line during his University course. The profession, no doubt, offers great opportunities for active participation in public and political life, and India's debt to her lawyers in many different spheres of activity is indeed a large one ; but my point still remains that the industrial development of India will necessitate a diversion of brains from these aforementioned channels into that of production in the narrower sense of the term.

There are those who would contend that this deficiency, of which I have spoken, and which will be generally admitted, is a product of the literary type of education which has largely predominated and still predominates in most of our higher institutions. I agree, but only up to a point. My contention is that our University education is good as a starting point even for the man who is going into business life. One of the tendencies, noticeable in Germany and in America before the war, and which has been particularly noticeable in England since the war, is in the direction of looking more and more to the Universities to provide men of broad education and with a general grip of affairs for the higher business posts, instead of depending as largely as formerly on the pushing clerk from below. Harrison and Crossfield, the large firm of exporters and importers in London, who have large connections with the East, have stated to me that this is the policy now being definitely followed by the Company, and the routine work of the business they leave very largely to girls. In this respect it seems to me that England is largely following in the foot-steps of the United States. What has often struck me in my travellings in that land has been the much larger number of University graduates that one found in all departments of business than was the case in England.

This change is partly a product of the growing complexity of modern business organization. Bagehot pointed it out most forcibly when he compared the modern organization of peace and of war. The modern commander of an army rides no longer at the head of his forces ; but in some secluded spot far behind, where the din of battle troubles him not, he follows by the telephone the movement of his troops, and directs and controls their operations. So in the business world—the man who is being wanted more and more, is he who can take a grasp of a broad situation, who can analyse clearly the problems involved, and sheltered from the petty details of management can give his whole time to the question of policy and the path to be pursued. It is here that the wide general education of the University is most valuable, and where the process of working up stage by stage may cramp rather than enlarge the outlook of many who pass through it.

The production of a class of industrial leaders in India seems to be one of the preliminaries of industrial development. Our present University system does not give us the product we have in view. Some may say, with reason on their side, that this is not the function of a University. But what is really worse, the University does not seem to instil the spirit that is necessary. Nor is the product got by sending a number of our best men to those old haunts of learning, Oxford and Cambridge. Colleges of Commerce may strike the imagination of some

as the institution most likely to turn out what is required, but as one who has been very closely connected with the Commercial Department of one of the Universities at home, I very much doubt whether the College of Commerce will turn our Indian student into a potential captain of industry. The training it gives is for the most part a good general education with a distinct commercial bias ; it is no doubt very satisfactory as a beginning, but it has to be very much supplemented.

The best training for the business man is still that which is got in the rough and tumble of ordinary everyday business life. No College of Commerce, and no Degree in Commerce can ever be a substitute for that. The College gives but the groundwork on which to build, and the building must be done in the business laboratory of everyday life. I am one who personally thinks that it does not matter a very great deal what course a student goes through before he starts this practical training. A really first-rate degree course in commerce is to be preferred, but a good Arts course on the modern side would seem to me equally satisfactory.

Now this practical training a student may get in our midst, but what he does not seem to get is that modern business spirit of which I spoke earlier in the paper. It, I feel, can only be acquired by placing a few of our very best young men who have done well in their University courses here in direct contact with the business organisation where that spirit is the predominating feature. We have in the past sent large numbers of our best men to the Universities abroad, and they have returned with much of the "culture" of the west. Let us now, if we are entering on the path of industrial development, put our young men in the position, as far as possible, so that they may assimilate and make their own the business methods and the spirit that prevail where industry is more developed than in our midst.

Japan is often held up as an example for India, too much so in my opinion, but in the above respect Japan has a most valuable lesson to teach us. When she was entering on the path of industrial expansion, she realized that it was essential that she should have men who had been given a chance to shake off the old methods that had prevailed for centuries, and who had assimilated something of the modern methods and the spirit that permeate industry to-day. She realized that she must have men who, on the industrial side, could guide the destinies of her country. For these she looked to her Universities, and from them she picked of her very best and sent them abroad to industrial and commercial firms. How did she get them in ? Because there was propaganda behind the movement, and India could, if she liked, do the same. Indeed, it is one of the bright parts of the Fiscal Commission Report that they suggest that firms, with which the Government of India have large connections, should take in apprentices from India for training. Ordinary apprenticeship would not seem to me to meet the case, nor to produce altogether the type of man I have in view. It would be necessary to come to special arrangements with particular firms to take in selected graduates for, say, two or three years, and to promise to let them see in that time as much as possible of how the business is run.

Let me put the question, are we teachers doing all that can be done both for our boys and for the country? A boy has a really good career at the University here, and we suggest that he should go to Oxford or Cambridge. He goes there, and does well. Back he comes and asks us what he should do. The facetious say to him, "Go and make pins," and he cannot! We want more people coming back to India who know how to make pins and other things. We want them coming back also imbued with the spirit that they can make an opening for themselves, and not with a plaintive cry to Government to try a pin factory as an experiment, and if it is a success, hand it over to private enterprise as a going concern.

My programme is therefore that there should be in each Province an agency of some kind through which we can get properly selected candidates placed with large firms, industrial and commercial, in England and elsewhere. I should like to know if anything of this nature exists in any of the Provinces. There is nothing in the Punjab, and from a conversation I had with Dr. Tannar, Principal of the Sydenham College of Commerce, Bombay, some eighteen months ago, I gathered that there was nothing of the nature in Bombay.

Whether that agency should, or should not be, the Local Government raises a debateable question. I personally am all in favour of a strong Local Committee on which you might have officers of Government, but they should be there in their non-official capacity. It must be a strong Committee; you have got to impress firms at home. But the further it is removed from Government, so much the better. If a boy goes abroad through an official agency, there is much more likelihood that when he returns he will rely upon the Government that sent him there to find him a job. That is the last thing we want to encourage. On the other hand, if a young man is sent through a private agency, and it is impressed upon him that he is going to learn, and that his future career largely depends upon himself, he is much more likely to develop greater self-reliance, and to be the asset that we want on his return to India.

It would be one of the duties of that Committee to scrutinise the industrial possibilities of the Province, and to select the type of firms to which it considers that its young men should be sent for training. To begin with, particularly, it ought to exercise the very greatest care in its selection, for the success of the whole experiment will depend upon the impression our boys make with business firms in England or elsewhere. It will be its duty to reconnoitre the ground abroad, and draw up a roster of firms that would be prepared to take in our boys and afford them every facility for learning the business.

In this connection some individual of the Committee, when in England, should have a personal interview with the managers of suitable businesses, diplomatically explain the idea, and I feel certain that we should get what we want.

It would be the duty of the same Committee to receive regular reports on the work of such learners as it has sent, and it would be in its



power to recall at any time any student who was in any way proving unsatisfactory. At times it would have to be strict. I myself, some eighteen months ago, sent one of my M.A. students for two years' practical training in the Bank of Scotland. He worked for six weeks, and then there came an urgent letter asking me to reply by return as to whether he might at the same time read for the Bar. With my general views before you, my answer can be better imagined than described !

Lastly, there is much greater responsibility attached to sending a student on training of this kind, especially with firms of certain types, *e. g.*, banks and insurance offices, than in sending him to a foreign University. The consequences of his going wrong are so much more serious. I consider that it would be one of the functions of the Committee suggested above to take and to hold, to find, if need be, sufficient guarantees for the good conduct of the learner against his return. No individual, especially of the teaching community, can undertake the liability that would be involved in sending a number of students on work of this kind. It would be all right if firms would themselves enact a guarantee, but as a rule they will not. They will simply say that they take the word of one individual or of the Committee as sufficient guarantee.

So far I have spoken as though the individual concerned would himself bear the expense. He will in most cases get no salary during his years of training—indeed he can hardly expect it. But if the experiment were set agoing, to begin with, through those who can themselves defray the cost of training, the day would soon come when Local Governments might have their attention called to what was being done, and asked to provide a limited number of scholarships for the specific purpose outlined.

There is a cry all over India for greater facilities for industrial and commercial education. All parties with experience agree upon the urgent need. Let us turn out mechanics and foremen by all means ; let more attention be given to commercial and purely clerical subjects ; but let us not stop there. Such a programme will not take us far. The political reforms have created a call for leaders in the political world : industrial expansion will make a much greater call for leaders in the industrial world. You may, in your Commercial Colleges, impart the rudiments of commercial education, but you cannot at the moment instil the spirit which will make India industrially great. I have outlined, what I consider, a feasible programme to fill the great deficiency under which India still labours.

In conclusion, there is one "fly in the ointment". It would appear that the day is not far distant when India will enter on a policy of protection, discriminating or otherwise. Protection does not of itself breed a class of industrial leaders. It does not of itself foster a spirit of individual enterprise and initiative, but rather the converse, *viz.*, that spirit of carrying on as things have been done in the past, and relying on Government not to remove the protective duties, or if things come to the worst, to increase them. Further it makes the carrying out of the programme suggested more difficult because we, with one breath,

say that we are to keep out as far as possible the goods of other countries, and with the next we humbly petition our producers of the past to teach us how to make the things we formerly took from them. We need not be surprised if they are not very keen. Even although the ultimate ideal be protection—whether it is the best policy or not, is altogether beside the point for present purposes—we could not go wrong along the lines I have suggested. It is a policy that would be easy to carry out now ; it would be more difficult under a policy of protection. Perhaps if it were tried on an adequate scale, the need for protection might become less apparent ; if protection were then adopted, the country would be much better prepared for production within its own borders ; and even the most ardent supporters of the policy of protection must admit that it is fraught with grave possibilities for evil that are entirely lacking in the scheme proposed above.



## SOME ECONOMIC ASPECTS OF DEFICIT BUDGETS.

By PROFESSOR H. STANLEY JEVONS, M. A., B. Sc.,  
UNIVERSITY OF ALLAHABAD.

The operations of public finance deserve a close economic study because of the important directive effects which the character and volume of public revenue and expenditure exercise on the economic activities of the people. The economic effects of taxation have been closely studied by many writers. These do not concern me in this paper, except in so far as a deficit may be considered to be due to undertaxation. The effects of various classes of Government expenditure are not so widely appreciated, which is regrettable because their directive effects are in some ways more important in the aggregate of results. I find it necessary, therefore, to begin by discussing the nature of an economic deficit, and to follow this with some analysis of Government expenditure.\*

In the first place, what is a real deficit?

We need to be very careful to distinguish between a mere book-keeping deficit, and a real economic deficit. The latter cannot be defined without a careful analysis: but broadly speaking it may be said to be an excess of expenditure in relation to returns from it, i.e., the public benefit secured, such that the accustomed rate of progress cannot be maintained. The point which I wish particularly to bring out is that a financial deficit must not be allowed to produce an economic deficit.

There is no relation of any fixed or predicable kind between an economic deficit as here conceived and to be explained below, and a financial deficit. An economic deficit may be realised even when the ordinary financial accounts show a revenue surplus; and it is also possible that there may be no economic deficit even when public expenditure on ordinary recurring heads exceeds ordinary revenue. It will generally be the case, however, that a financial deficit tends to produce an economic deficit; and the main purpose of this paper is to see how this can be prevented. With this explanation, I proceed to examine the nature of an economic deficit.

### The Capital Fund.

Economists have been familiarized by the writings of J. B. Clark with the idea of the "Capital Fund"—consisting of all the fixed and circulating capital existing in a country. It includes all public works and property, all usable buildings, all durable goods, whether for production or consumption, and all consumable goods. In a normally

\* This paper was given at the conference mainly from notes, and substantial changes in the subject matter have since been introduced.

progressive country the deterioration of capital goods is more than made good by new savings and investment, and the capital fund is constantly expanding, though more rapidly in some years than others. A great and destructive war, on the other hand, may seriously diminish the capital fund in the belligerent countries, and particularly in the actual areas of hostilities.

Besides the "material" capital comprised in the capital fund there is another and human element in the material civilization of any country, of the greatest importance; I refer to the accumulation of knowledge and ideas, such as the technique of industries, which have become public property and conduce, through inventions, new discoveries and improved organization, to a far more efficient application of labour and utilization of the capital fund.

Improved modes of life—rational housing, townplanning, wise and simple living, better health, culture for enjoyment of leisure—increase directly, the sum total of human enjoyment besides increasing the efficiency of the people as workers. All this accumulation of knowledge, established institutions of government and of industry, all these good habits, life and capacity for enjoyment, I must call, for want of a better term, the fund of "human capital." Education is, of course, the great agent for increasing the fund of "human capital;" and public health services are perhaps equally important.

### **Progress the Normal Condition.**

Economists are familiar with what is termed the static condition of a people. Over any period of years the capital fund shows neither augmentation nor decrease: the fund of "human capital" is stationary too. Society remains as it was. Only the population would be growing and standard of living falling, until the pressure on the means of subsistence would bring the positive check into operation. This condition was doubtless characteristic of most of Europe until the sixteenth century, and of parts much later; whilst in India and China large tracts have for centuries been in a static condition, broken only by wars or terrible famines. Since the break-up of the feudal system in Europe, and especially since the agricultural revolution and expansion of trade, followed by the industrial revolution, progress has become the normal state. There was in the eighteenth and nineteenth centuries a continuous growth of accumulated capital, accompanied by a growth of technical knowledge and application of inventions. This was followed in the nineteenth century by a vast improvement of public health, the material resources for which only became available through the increasing wealth of the countries—England especially, others in Western Europe following.

The rapid growth of material civilization in America, followed, and now accompanied, by a rapid expansion of the "human capital" is, perhaps the most astonishing phenomenon of progress ever seen, whilst Japan and many non-European countries have recently started and gathered strength in an economic revolution. In the present age

progress is the normal condition : and any country which is not augmenting its funds of material and "human capital" will lag behind in the race and become relatively poor and internationally weak.

If progress is to be regarded as the normal condition, it follows that the public finance of every well-governed country must be so managed as to provide for constant progress in these respects. Finance must be found for all that will make for increased efficiency of the population as producers, for improving health, for better education in work and in culture. The normal budget will provide from revenue for building up the capital fund—particularly that important portion (public works of all kinds) which is in public ownership—and for such expenditure on education and public health as it is possible to afford without unduly burdensome taxation. When such expenditure on public works, and the creation of "human" capital, takes place out of ordinary revenue there is effected a compulsory saving of capital by the people as a whole through the instrumentality of the State ; and this should be the normal condition. An economic deficit is the result of a failure of the scheme of public finance to secure such compulsory "saving" and investment at the annual rate to which the country has become accustomed.

### **Nature of an Economic Deficit.**

An economic deficit occurs whenever the rate of growth of the capital fund, material and human is less than the normal rate of growth to which the country concerned has become accustomed, and to which it has adjusted its economic life ; and the deficit is the difference by which the actual rate of progress falls short of the normal. It is impracticable, of course, to define a normal rate of growth with any precision ; but the idea certainly has a firm basis in reality. It is a fact that in every country the population tends to grow, and at a rate depending on numerous factors peculiar to the country. It is also a fact that in every country which has become accustomed to the continued investment of capital in public works and in the expansion of trade and industries, there is a real demand for the continuance of new investments of capital in such manner year by year. Failing such new investment the supply of all kinds of services and goods depending on such investment becomes noticeably insufficient. The truth of this becomes evident when we consider how the cessation of new investment during war-time brought about an acute shortage of railway facilities of all kinds, an increasingly felt want for new roads and bridges in certain parts, and a shortage of cotton cloth and many other commodities largely produced in India.\*

---

\*The shortage experienced was, of course, partly due in the case of railways to non-replacement and inability to effect repairs, and in the case of commodities to restriction of the normal overseas imports ; but, after making allowance for this, the absence of the normal annual increment of invested capital in the country remains an important cause of the shortage.

Furthermore, if a country has become accustomed to an extension year by year of educational facilities, or the progress of works and agencies for public health, it learns to expect a regular continuance of the extension of such facilities and improvements. Seeing what has been done here and there, people become increasingly conscious of wants for such improvements in their own localities, for by knowledge and experience they have been educated to want them. When a normal rate of progress is maintained there is a normal interval between the public becoming conscious of such a want and its satisfaction. When the rate of progress is much slackened that interval is greatly lengthened and people become impatient, become acutely conscious of the want. That is the psychological expression of an economic deficit.

### **Relation of Normal Budget to Progress.**

In a country having a stable Government a financial equilibrium is more or less maintained in normal times of peace. When the people are politically conscious and have representative institutions controlling finance the needs to be met by expenditure are uppermost in men's minds; they are debated and finally assembled into a budget. Taxation is imposed to raise the revenue needed to meet this expenditure; and the burden is distributed so as to bear as lightly as possible on all, that is to say, more or less in accordance with ability to pay.

When the desire for progress animates the people, they will demand expenditure for the purpose. Of course the public may be, and often are, ignorant as to what kinds of Government activities and expenditure would be most conducive of progress. In this they need educating; but in any case they will gradually learn by experience. As the public demand for progress grows, the normal budget will come to make more and more provision for the growth of the "human" and material capital fund.

### **Economic Classification of Expenditure.**

Before examining the effects of a disturbance of budget equilibrium, I must offer an economic classification of expenditure, the object of which is to indicate the economic effect of every kind of expense which a Government usually incurs. On this basis there seem to be six major classes of expenditure as follows :-

- (1) Military (including Naval) expenditure on defence and internal security. This is a direct drain on the national dividend, and thus retards the growth of the material and "human" capital funds. War is always destructive of the capital funds; at least so far as society as a whole (international) is concerned.
- (2) Expenditure on the civil administration - maintenance of law and order, administration of justice, and collection of the revenues. These essential services stabilize the fabric of Government; and neither add to, nor detract from either capital fund, if honest and reasonably efficient. A corrupt

or inefficient civil service and judiciary\* will often reduce, and even destroy the incentive to work and saving, and thus are detrimental to the capital funds. Underpayment of Government officers relatively to the standard of living to which their class has become accustomed may be largely the cause of the corruption; and this result of attempting to balance the budget must be carefully avoided.

- (3) Expenditure on the beneficent services, the chief examples of which are public health and education, increases the fund of human capital, and directly in proportion to the efficiency of the expenditure.
- (4) Expenditure on the indirectly productive services increases the fund of material capital, and indirectly also the fund of human capital by creating leisure for enjoyment and resources for maintaining the beneficent services. Examples of indirectly productive services are the agricultural departments and colleges; technical and trade instruction; maintenance of roads and other public works in good repair.
- (5) Expenditure on permanent works, such as roads, bridges, drainage channels, public buildings, and so forth. This directly increases the fund of material capital.
- (6) Expenditure on the commercial services, such as the post and telegraphs, railways, irrigation canals, and all public utility services for which fees are charged more or less proportioned to service rendered. These are part of the flow of the normal economic life; and in most cases the state undertakes them either on account of their monopolistic character, or because the risk in investment of capital is too great for private enterprise. Capital is invested on commercial lines, *i. e.*, if it shows a return exceeding the rate of interest at which Government can borrow; but the fact that Government lends its credit for raising capital is a factor tending greatly to augment the capital fund.

#### **Relative Growth of Different Classes of Expenditure.**

Prime importance attaches to the relative rate of growth of expenditure falling in each of these classes. In a normally progressive country all classes of expenditure will tend to grow—not only absolutely, but relatively both to the general price-level and to population. It is obviously undesirable that expenditure in classes\* (1) and (2), military and civil administration, should grow, except slowly; and they should certainly grow much less rapidly than expenditure on classes (3), (4), and (5). As the revenue and expenditure on each commercial service should balance, if not show a profit, at least over a series of years, I leave the commercial services out of account.

More important than the absolute or relative amount of expenditure on each service is its efficiency; and the marginal efficiency of an



increment of expenditure in expanding the service will depend on the average efficiency of the whole service. Bureaucracies have a tendency to over-organize themselves, and by their size and, by the intricacy of the channels of work and threads of control, to lose much in efficiency and particularly in initiative till they function only in response to clamant demands on their attention. Unless subjected constantly to criticism they lose the ideal of service as an object of existence : and only a great emergency re-arouses it. It follows that an increment of expenditure directed to re-organising, simplifying and re-enlivening a service will at times be far more efficient than an increment devoted to expansion. In fact an increment of expenditure on re-organization, if the effort be sustained, may enable an elimination of personnel to such an extent as to save far more than the cost of the re-organization, and yet gain in efficiency.

### Causes of Deficits.

The equilibrium of the budget may be subverted, and a deficit result, from various causes, the most frequent of which may be tabulated as follows :—

Increased expenditure caused by—

- (1) A war, or other extraordinary military expenditure.
- (2) A considerable rise of the general price-level necessitating the increase of salaries of Government servants.
- (3) The gradual growth of expenditure on any or all of the public services, due to prior commitments, such as graded pay.
- (4) Debiting to revenue the cost of urgently needed permanent works, each in itself inconsiderable perhaps, but the expenditure being properly of a capital nature.

Decreased revenue due to—

- (1) Depression of trade.
- (2) Widespread failure of crops.
- (3) Civil commotion.

The remedy must, of course, be adjusted to the cause, and a careful analysis of the cause or causes of a deficit is indispensable. It may be found that two or three causes are acting together, each partly responsible for the deficit ; or there may be a counteracting increase under some head of revenue, without which the deficit would have been larger. The analysis may conveniently be carried out by the graphic method, plotting a histogram of each head of expenditure and revenue for 10, 15 or 20 years back. If plotted on the logarithmic scale\* any exceptional rate of increase, or cessation of the normal rate of increase, will be immediately apparent, and the causes thereof be ascertained by an inquiry into the detailed figures.

---

\* For explanation of the logarithmic scale see *Elements of Statistics*, by A. L. Bowley, 2nd ed. 1902, p. 188, or later editions ; and other text-books on Statistics.

Such an analysis of growth of expenditure may be carried out, of course, according to the ordinary budget heads and sub-heads now in use; and in practice it would be an onerous task to make a new classification of expenditure for the purpose. Yet the analysis cannot be considered complete until it has been carried to the point of separating distinctly from one another all kinds of expenditure which belong to different economic classes, such as the six classes named above (pp. 42 and 43). Only by such a separation is it possible to draw conclusions, as to the economic effects of proposed remedies—whether more revenue must be raised or retrenchment be effected in various services, and if so which, by how much, and by what means.

Such economic analysis of expenditure ought indeed to be the normal accompaniment of budget making, and not be confined to eras of enforced retrenchment. The various heads of expenditure need to be redefined and regrouped according to a classification which has an economic basis; or at least a second version of the budget should be prepared on the economic basis to accompany the normal budget based on an administrative classification. If this be done Government will have its attention more forcibly directed to the probable economic results of proposed re-adjustments of expenditure; and the legislature and the public generally will be enabled to judge more easily as to the justification or otherwise of increases of expenditure, or proposed reductions, having in view the future economic welfare of the country. The economic classification would in fact exhibit the extent to which Government was contributing to the material and human capital funds of the country, and promoting material and cultural progress. A true balance-sheet for the country could be prepared each year showing the improvement of its material, vital and cultural assets; though, of course, to make it strictly true, a valuation of those assets which would be entered at cost, according to the efficiency of the expenditure in producing the intended results would need to be made by statistical and other means.

### **Necessity of avoiding an Economic Deficit.**

The economic analysis of expenditure outlined in the preceding section will go a long way towards discovering whether the country is experiencing an economic deficit or not. As I have pointed out already (p. 39), there is no necessary connection between a financial deficit and an economic deficit, though, of course it is more likely than not that a financial deficit will be followed by an economic deficit as the result of retrenchment initiated on account of the deficit. A financial deficit is, of course, highly inconvenient; and if not rightly met, it may have seriously prejudicial economic effects. Such effects can be avoided by correct financial measures; and it remains true, therefore, that an economic deficit, whether arising from retrenchment, or from permitting inefficiency to grow in the beneficent and indirectly productive services, is far more serious than a mere financial deficit.

The correct financial measures for coping with a financial deficit are to carry on by borrowing *from the public* by sale of Treasury Bills, and to fund this floating debt at least once a year by the issue *to the public* of long term loan securities. By this method the financial deficit does nothing worse than add to the unproductive permanent debt of the country.

The worst expedient for meeting a deficit is inflation of the currency by excessive issue of paper or of token coins. Another measure sometimes adopted to finance a deficit is to borrow from a bank or banks, by a fixed loan, or a fluctuating overdraft, or by discounting Treasury Bills with the bank. This method results in inflation of bank credit, and thus of bank deposits subject to cheque; and the effect in raising the general price-level is as bad as inflation of the currency.

On the other hand, when the public buys Treasury Bills there is no inflation of currency or credit, unless the banks freely advance to the public on the security of the Treasury Bills, which they should make a practice of doing as little as possible. The effect of large issues of Treasury Bills on the money-market is dependent on what Government does with the money. If it is immediately banked and paid out from the Government account no stringency is caused; but locking up large funds obtained by loan in Government Treasuries, or in the Imperial Bank, when the uncertainty as to dates and amounts of withdrawal of large sums makes it unsafe for the Bank to lend any considerable part of it, will cause temporary stringency. Government transactions can and should be arranged so as to avoid this result.

The result of funding the floating debt is to transfer the loan securities (*i. e.* Treasury Bills) from temporary to permanent holders (the bills having become long dated stock or bonds) and thus from trading and financial firms largely to private investors, many perhaps, of small means, and representing all classes of the public. Thus the economic result is that part of the recurring expenditure of a deficit year, which is represented by the deficit, is now represented by loan stock or bonds the annual interest upon which will absorb a small part of the country's revenue in all future years until redeemed. Such debt is unproductive in the sense that it has not been incurred in order to make permanent works which would increase revenue directly or indirectly, nor to increase the "human capital." The interest on unproductive debt is, of course, a burden on the country; but not a serious burden comparatively speaking. A measured judgment would regard the inflation of the currency, or of credit by bank borrowing, as producing economic evils far greater than the creation of floating debt and its subsequent funding into permanent debt.

I would go further and assert that it may be a positive advantage for a country to incur a deficit and the consequent unproductive debt, if that deficit has been incurred by an increase of expenditure on the beneficent services (public health and education) or on the indirectly productive services (such as the agricultural departments).

The fund of "human capital" is thereby increased: and this will increase the efficiency of the people as workers, besides to some extent directly raising their standard of living and capacity for the higher forms of enjoyment. The outlay on education, health and agriculture undoubtedly creates gradually an increased taxable capacity: and probably adds to the country's revenue after a few years far more than the interest on the debt representing the deficit or series of deficits. Expenditure on education and agriculture efficiently applied gives an indirect return at a high annual percentage.

During many years before the war it was not infrequently the case that the German Imperial Government was unable to balance its budget and met the deficit by increase of its permanent debt. At the time I used to be puzzled that this seemingly imprudent finance had apparently no ill-effect on the country which with its rapidly growing industries and mercantile marine exhibited a prosperity and rate of progress unexampled except in America. The civil administration of Germany was efficient at low cost—only its army was a great burden—and the beneficent and indirectly productive expenditure was also efficiently made, so that it doubtless yielded a big annual percentage of indirect revenue. Hence promoting and extending the beneficent and indirectly productive services, even though it led to the necessity of borrowing, was in every way good policy.

The ground is now clear for me to draw the conclusion to which this paper is directed. I have shown that every normally progressive country becomes accustomed not only to the idea of progress, but to some normal rate of actual progress which is approximately maintained from year to year. Only in war-time and when finances become seriously deranged is this rate of progress checked. I am not sure that it is good policy to check this progress even in war-time by curtailing the beneficent and indirectly productive services—certainly not unless the enemy's pressure necessitates a very heavy drain on man-power. I am quite clear, on the other hand, that nothing short of a tremendous war should be allowed to interfere with the country's normal rate of accumulation of "human capital." To retrench expenditure on the beneficent and indirectly productive services merely because there is a prospect or certainty of a financial deficit is deliberately taking an action which will produce an economic deficit. As I have tried to show, an economic deficit is the real thing: something which must adversely affect the country in the near future, and by its cumulative negative effects, also in the distant future. An economic deficit must be avoided, therefore, even at the expense of incurring a financial deficit.

Economies should be begun by an overhauling of the civil and judicial administrations, and by reducing military expenditure by more efficient organisation. Whilst economies are being realised in these directions additional revenues may be raised by taxation, until, after two or three years, perhaps, the budget may be balanced again. In the meantime financial deficits will be incurred, and these must be

funded into permanent loans. This may be done without misgiving, however, if the financial deficit is not large in proportion to the annual expenditure on the beneficent and indirectly productive services : say, not more than one-half of such expenditure. In India, the finances of the Central and Provincial Governments must be considered together for this purpose. In any case it is not the beneficent and indirectly productive services which should be stinted for money. Let them be re-organised so as to secure greater efficiency for the expenditure incurred ; but to reduce this branch of expenditure so as to impair in any degree the service rendered, is bad national economy. In some directions, *e. g.*, in public health and agriculture, additional expenditure would prove after a few years, so greatly remunerative to the country, that it would be sound economy (and therefore, sound finance— for the greater includes the less) deliberately to borrow to finance them, whenever ordinary revenue, after due retrenchment of the least necessary expenditures, is insufficient to provide for these services.

Finally let me safeguard myself by saying that nothing in this paper is to be interpreted as condoning a legislature or administration which fails to balance its financial budget. To go on incurring financial deficits year after year will add seriously and unwarrantably to the unproductive debt of the country ; and strenuous efforts ought to be made by economies in administration and raising additional revenue to avoid this. Whilst deprecating financial deficits, however, I have been concerned to point out that there is the likelihood of creating a worse evil by any kind of retrenchment which will tend to produce an economic deficit. This last must be avoided even at the cost of incurring financial deficits during the period necessary to bring the country's finances once again into equilibrium.

A certain amount of discussion, principally on Fiscal Policy, took place during this Session. It was not reported.

**GARDEN PARTY :—**At 4-15 p.m. the members of the Conference attended a garden party given in their honour in the Town Hall grounds by the members of the Reception Committee.

SECOND DAY :—WEDNESDAY, JANUARY 17th, MORNING.

### EXCURSION TO RAILWAY WORKSHOPS.

Members of the Association assembled at the University Hall at 9-45 a.m. and proceeded in motor cars, kindly lent by members of the Reception Committee and others, to the Railway Workshops, Moghulpura. They were conducted over the Locomotive Workshops and the Carriage and Wagon Workshops by the Officers in charge. At 12 noon members returned to Lahore.

SECOND DAY :—WEDNESDAY, JANUARY 17th, 1923. AFTERNOON SESSION.

### THE NEW ECONOMICS AND THE EASTERN OUTLOOK.

BY PROFESSOR RADHAKAMAL MOOKERJEE, M.A., PH. D.,  
LUCKNOW UNIVERSITY.

There is a growing recognition in the west of two important limitations of modern economic science. In the first place, economic principles have not progressed with the recent advances in biology and psychology ; they have remained more or less a blend of hedonistic psychology and utilitarian ethics. An out-of-date associationist psychology is still the assumption of modern economic analysis. The psychology of motivation, of individual and social behaviour is still inadequately recognised in economic theory which concerns itself with the working of one human motive, and is apt to forget those external aspects of human psychology, which represent man's manifold reaction to a concrete environment. The newly developed instinct psychology decidedly exhibits a tendency away from intellectualism and the interpretation of conduct by an enlightened self-interest. Economics, however, still bases its analysis on the explanation of behaviour by rational motives, revealed by the logical introspection of the older psychological school. It has thus reared up a system on a logical method of investigation which is now obsolete and has taken only a fragment of real living man and a distorted shadow of commercial economy.

This limitation in method and analysis is as a matter of fact associated in the age of steam and iron with the ideal of mechanical or geometrical as opposed to vital or purposive efficiency. This has sought quantity rather than excellence derived from individual variations in production and consumption, and repressed some of those vital and perennial instincts and impulses which are conducive to the development of personality as well as of an all-round social well-being. Such repression has led to the disturbance of the economic equilibrium in a wide-spread industrial unsettlement and unrest ; and it is the aim of post-war economics to establish industrial peace as well as to correct that divorce of industry from art and from creative activity, and from the human and personal note without which the finer cultural developments of personality and humanity are impossible.

It need not be told that we have now come to recognise that economic efficiency exists in virtue of and in subservience to an all-round social and individual well-being. But this tardy recognition awaits elaboration in spite of the achievements of socialism, both in economic theory and economic practice. The post-war scientific industry has been shaping a programme for the satisfaction of those vital instincts and standards hitherto repressed in the era of machine production. But little attempt is made to take these into account in economic theory. The parental and family instincts have received little recognition from the economist in his calculation of the standard of efficient subsistence. In the theory of value, the cost of production has not taken into account the element of artistic workmanship as entering into the quality of the product, while in the demand for commodities, the estimate of utility has missed the value derived from the satisfaction of aesthetic impulse. The theory of production has ignored the instinct of constructiveness or creativeness which infusion with the instincts of self-expression and mastery are to-day becoming manifest in the attempt of the labourers to seek control over the industrial management. Our expanding social sympathy and the herd instinct similarly demand the emergence of new economic concepts such as co-operative productivity and ethical competition, which mark the transition of the economic process to a biological as well as to an ethical plane. Lack of co-ordination indeed characterises economic analysis which cannot lift the problems of production and distribution from the merely mechanical and physical plane. And in the exclusively mechanical point of view how easily and complacently the elements and factors are separated. The economic processes should not be looked at from the point of view of the employers or of the employees alone, as has still been the wont of modern economics, neo-classical or revolutionary, but should be broad based upon the fundamental values of concrete human life. Important applications have been recently made of physiology and psychiatry, seeking to bring about an increase of efficiency and welfare of the workers. In business sale and industrial management, in lessening industrial fatigue and in measuring intellectual abilities, the role of the consulting psychological examiner is gradually recognised by the industrial plants, which are coming to take into account the efficiency virtue of attending as strictly to their human outgo as to their human intake; of even selecting workers on the basis of natural fitness and considering the problem of promotion upon lines of vocational psychology. Clinics and hospitals are specialising on the treatment of industrial accidents and diseases, and the study of diseases in their relation to occupational conditions. The concept of "mass" medicine, sanitation and social welfare has received special emphasis during the war; the sociological view of industry is gaining ground, but all this has failed to change the traditional approach to economic theory, which was fixed by the Ricardian economists who wrote and flourished in an age which had small responsibilities for its great undertakings.

There has certainly dawned a conception of the complexities and perplexities of the psychological and technological factors of modern

industry, and of the differences in the calculus of production they bring about, but economic analysis remains still satisfied with the presentation of the simple formula of Land, Labour and Capital. Similarly, the theory of distribution still ignores not only the interdependence of the factors of production but also the costs of maintaining their constant flow which are the first charge of the industrial establishment. The deficiency has been brought to the front especially in the theory of wages. The post-war social conscience is demanding fair and living wages for all grades of labour as a matter of practical economic policy and legislation. But theories die hard. They are like the demons of the Ramayana who fought on the bellies when their hands and their stumps were off. The theory of wages still clings to the conventional concept of marginal or specific productivity of labour which does not adequately recognise the fact that labour as an agent of production must not show an ebb and tide but a regular and constant outflow and inflow. And this is possible only when the industrial plant recognises its responsibility towards the renewal of labour as a group in the productive process. The dynamic concept of economics refuses to be satisfied with anything less than a complete recognition of the above factor. This implies, again, a transformation of the economic concept of the standard of life to an ethical and normative concept, demanding the co-operation of each class involved in the productive process for the determination of the costs of maintaining the workingman's families in different regions, kinds and grades of employment. Fair wages should be determined in theory not merely with reference to local conditions of employment in specific regions and occupations but also with reference to the profits of the industrial establishment as a whole and as part of the national system of production of which labour is an integral part.

Modern economic unrest all hinges upon the fact that the high cost of living, an after effect of the war, has encroached upon the labourers' means of subsistence; and unless the industrial establishments take upon themselves the responsibility of the recoupment of labour as a productive group production will be paralysed. This is specially true in the case of the present phase of industrial transition in India. Labour in the east in our mills, mines and plantations has not yet weaned itself from rural and communal standards, and has especially been showing symptoms of a morbid pathology which should be treated in a sympathetic spirit that must seek to cure the ills of labour in an alien environment. The east has still preserved certain vital values and standards, which may yet be utilised in a saner and more righteous industrialism. We are gradually witnessing the emergence of a new industrialism which is based on the recognition of human values and standards, but this has been as yet unaccompanied by any real changes in the approach to economic theory.

In no other aspect has economics ignored more the standards of the east than in its urban predilections. In the east agriculture is fundamental, the source of livelihood for three-fourths of its population, and its social values are duly recognised though at present the tendency to subsidise urban development at the expense of agriculture has begun to be manifest as in the west. Both in Great Britain and the United



States of America. Nearly two-thirds of the people live in the cities and towns, and the movement to the city had proceeded apace. The low birth rate and high mortality as well as physiological deterioration of urban populations mean a continuous deterioration of the race and of the level of civilisation. The war has taught that the subjection of agriculture to crises due to urban profiteers represents a drift too far in the wrong path of urban parasitism, and there has arisen an appreciation of the values of agriculture, its richer rewards of satisfaction for the normal human instincts, and its larger outlook to the progress of the race. Economics has been the formulation of urban interests and strivings, which have always exploited each other, giving us the picture of mutual conflict. To economists land has been a mere agent of production, a form of property or wealth as affecting industry and taxation, and not as an environment within which is set in harmonious setting the normal life of civilised man, a field for the exercise of the instincts connected with home-making and constructiveness, which have played the primary part in developing and maintaining civilisation. The want of perception on the part of the economists of the relations of agriculture to other forms of human activity has made the science so barren of results towards eugenic and eupsychic reconstruction; and nothing will tend more to bring about practical adjustment of human relations and activities than the re-orientation of the rustic, *i.e.*, the concrete biological, human-interest point of view. Even socialism has adopted the wrong psychology in relation to land. Fed by the passions of the landless proletariat, socialism has emphasised the abuses arising from urban land monopoly, and proposes even to take away land from farmers, and control it like an "industry" from the city. The repression of such a normal instinct as land-hunger has caused mob-outbursts, while the attempt to establish urban proletariat dictatorship over agriculture has wrecked farming and urban manufactures in Bolshevik Russia. Thus has abstract reasoning set at naught imperative human and social values. An inter-dependent system of rural and urban economy and exchange can alone maintain the structure of civilisation. The rural community movement and the co-operative organisation are thus in the forefront of social programmes to arrest the disintegrating tendencies of urbanism. The normal balance between agriculture, manufactures and commerce has been disturbed everywhere by the action of mercantile rings and syndicates who speculate in crops, heedless of the requirements of food consumption of the agricultural population. Commercial parasitism is seen in its worst forms in tropical regions where abundant cheap labour is utilised by white capital with a maximum of commercial activity and urban profit. Rural progress starts from rural self-sufficiency and consists in a rotation of multiple crops, while one crop system even while it leads to over-production does not lead to the satisfaction of the manifold needs of a relatively simple agricultural community. In one crop systems of agriculture as in tea, coffee, cocoa, jute, rubber and hemp plantations in the tropics we find a close approximation to factory methods and regulation along with the rise of slums

and sweated labour even in the midst of a sparse population. The one-crop system in Africa and Asia has been an agency of oppression and a cause of agricultural depression, and agricultural crises and famines show the dangers of urban exploitation. Indeed the acute problems of inter-racial economics connected with the exploitation of the tropical and sub-tropical regions arise on account of the disturbance of the normal equilibrium between agriculture, manufacture and commerce. Economics ought to appreciate better the general need of better relations between urban and rural interests. Civilisation must conserve the fundamental educational values of agriculture.\* But economics entirely overlooks them, and in its emphasis of urbanism ignores many other elemental instincts and deeper satisfactions of human nature.

In an admirable analysis of contemporary economic thought, Professor Fetter has recently shown the limitation of what he terms price economics, which has very tenacious roots and sprung up vigorously in the writings of authors where it had been blasted leaf and branch. He examines especially the dilemma of Alfred Marshall, the influence of whose book on economics teaching in India has not been quite healthy as encouraging an unreal and speculative outlook. In his price economics, Marshall is a faithful guardian of Ricardianism, though the human element evident in his enquiries and digressions is perhaps the firmest foundation of his reputation in spite of his eclecticism in matters of principle and his apologies for the sophistries of Ricardianism. The neo-classicists still talk Hamlet-like with the skull of an effete Ricardianism on the one hand, and the spectre of the economic man on the other. Problems of banking and currency, of price fluctuations and crises may be expressed in monetary or mathematical terms but they touch only the fringe of the real economic interest. For certain purposes averages and indexes may be absolutely useless. As a statistician observes, an average or an index cannot be used when the exact wage conditions of an industry or a locality is the fact to be ascertained. But for the study of the broad tendencies, an average still represents a very convenient method and when the tendency studied applies to many industries and many localities, nothing can supplant an index number. It must also be remembered that averages and index numbers should be applied not merely to the study of the world of labour as a whole but also more usefully to the investigation of wages and hours of labour in different occupations, localities and grades of employment, even as the new economic psychology should obtain its data from the variety and heterogeneity of types of labour and its behaviour, and their relation to the technological conditions of particular industry. Thus the average and index have and must have reference to one of the important issues of a concrete economic environment and its diverse and specific reactions on man and his wel-

---

\*For the educational values of agriculture see O. F. Cook's "City and Country," and "Journal of Heredity," March and April, 1921, and my "Foundations of Indian Economics," Conclusion; and "Principles of Comparative Economics," Chap. IV, Vol. 2.

fare. The mathematical and the statistical method in order to be useful must shoot forth tendrils of human tendency; and, indeed, the new method must elude a graphical or mathematical representation inasmuch as human motives and tendencies cannot be measured quantitatively because of their element of uncertainty, and of the qualitative difference from the standards of measurement proposed. Even if we admit the measurability, these would have to be regarded as functions of such a large number of variables that any exact calculation will be rendered impossible. The fundamental basis of the new method will be the principle of adaptation, which being the essence of all economic tendencies, exhibits a manifold variety in diverse economic groups and situations. The conventional method of treatment is but an instance of geometry nibbling at the skirts of living issues. The relations of men to goods and to their enjoyment, the choice of industry and of profession, the satisfaction value derived from production as a creative activity and from consumption of material goods as a mode of enjoyment, social and individual valuation, the concrete economic situation with its complex processes and phenomena and their reactions on man and his motives and welfare, these and other problems which gravitate round the very centre of economic interest cannot be moulded in a Procrustean bed of classical or neo-classical formulæ, averages or indexes. In no other age, indeed, have economic theories been so much discredited and distrusted as during and after the war because of the obstinate attempt to interpret concrete problems and issues of life in terms of mechanistic valuation. They have been regarded as inadequate by administrators on the one hand, and abstract and dogmatic by the revolutionaries on the other.

Its effects have been no less harmful than that of the metaphysical theory of the state as propounded by German political philosophers. The abstract concept of the economic man, empty of content, clothed with the form of rationality the demands of competitive industrialism, the nineteenth century phase of western economic revolution even as the Hegelian theory of political obligation latterly came to justify the autocratic demands of the Prussian bureaucracy. The finalism of economic abstraction, which has found its modern champion in Marshall and his school, has been associated with a gospel of duty, separated from empirical purposes and results, which has gagged the vital impulses and values of individuals as well as of society at large. British economic metaphysics, if I may coin the term, fares no better in this respect than the post-Hegelian political philosophy; both set up as realities states, and social economic laws impersonal and alien to, and lording it over the deeper and the dynamic phases of human life. And here again the corrective would be as in the case of the German idea of the state to go back to the realisation of the wholeness and completeness, rather than the unity of the group. And this realisation will bring in its turn the recognition of the group as a dynamic and integrative reality or the body intermediate between the state and the individual which will be the bedrock upon which new economic thought must stand.

The root fallacy in economic theory lies much deeper. Economic analysis has not as yet weaned itself from the obsession of the Darwinian theory of competition and natural selection which has made much of the competitive system among animals and neglected the co-operative system in organic evolution. This has strengthened and been strengthened by the older interpretation of individual behaviour by rational motives. Indeed both these strands of thought are hardly discernible, in the web of economic individualism, which the economists have woven and which has cast its spell over every field of human endeavour. That spell has now been broken after the strife and unrest which followed the unregulated development of capitalism and financialism with its inevitable nemeses of individual and social revolt. And to-day in the west we see tentative experiments of group formation which seek to check the evils associated with the centralised absolutist structures in polity and industry. But co-operative production has ceased to progress while organised unionism subordinates co-operative political lines to class interest and practically abolishes the older political order. Guild socialism and syndicalism are to-day each loudly advocating schemes of re-organisation on the basis of the group organisation of the economic life. In all these schemes of industrial reconstruction, however, the inherent rights of groups are asserted and emphasised in the same way as the natural rights of the economic individuals of the *laissez faire* days while in the attempt to bridge the gulf between the labourer and the Capitalist, the unskilled proletariat and the specialised worker, the social strife is repeated in another and perhaps a more extended field by ranging the forces of production against the army of consumers and brain workers. This will be the inevitable result of adopting the syndicalist plan of the substitution of the economic control of producers for parliamentary control by the consumers. The guild socialist's notion of two states is similarly inadequate for it does not present a practical solution of the difficulties that will arise in case of the conflict between the federation of trades and guilds on the one hand and the organisation of the consumers on the other.

The new economics must base itself on a more adequate theory of group-life and relations. Guild socialism and syndicalism break up the economic man into divergent and conflicting fragments which refuse to reunite in the political order. Socialism invokes the all-obtrusive authority of the state, with its inspection and inspectors, for compelling their co-operation in the exercise of the general will of the community it represents. Indeed all these movements originate from a vicious hypostasis of man and his functions; only the calculating and hedonistic man of the classical days has yielded his place to an aggressive and intimidating economic man. The new economics will avoid these fundamental errors and base itself on a new type of group-life which takes into account the whole man and fuses any divergent and conflicting interests by placing the individual in the communal centre and the communal interest in the centre of the individual life. It will develop concepts of man as an evolving social being, who satisfies his needs by complex social co-operation and whose activities are not so mechanical

as the theory of competition assumes. These spring from the deeper and more elemental impulses, which determine economic standards and institutions and place the life economic in a harmonious setting of the collective life of the community. Economics will thus satisfy the inevitable and growing demand of the corporate social personality of man, so much repressed by the modern economic organisation. Indeed we are witnessing to-day far-reaching changes in the economic organisation itself. Industry is bound to be co-operative and creative in a much fuller measure than we now imagine. The future does not belong to State-socialism, for we already see a movement in the west towards the delegation of the authority of the state to the great trade unions. The nationalisation of industry in the phase at present before the industrial leaders has obvious difficulties. Yet through socialism and syndicalism, Guild socialism and organised unionism the west is steadily approaching towards the new industry and the new society in which the industrial groups will be better oriented and there will be neither any industrial compromise and forced acquiescence resulting in strikes and lock-outs nor any dissociation of the groups involving economic and social anarchy.

To-day the new group psychology, the new ethics, the new politics and the new jurisprudence are all based on a new conception of modes of association and of integrated individuals acting in groups. They are all giving up the tattered garments of the nineteenth century fignent of the isolated man though owing to an imperfect conception of synthesis the sectional view of the social organism is reappearing in other guises. Indeed the whole anti-intellectualistic tendency and the trend of philosophical thought towards Pluralism have swept away the basis of that logical abstraction on which economics still rests. The re-instatement of man's composite personality and the healthy and the progressive group life and development insistently demands more adequate and correct economic concepts. This demand is being met in other humanistic studies, but economics still obstinately refuses it.

But a far more important defect in logical analysis arises on account of the neglect of wider cultural groups or types that comprehend the entire life of races and peoples other than the purely Eur-American whose rich, social and economic experiments have no less a significance in the evolution of world life. Economics has not hitherto sufficiently taken into the account diversity of environments and the variety of life-schemes, and economic values of cultural groups and regions, and different social and historic series in different environments. The impact between the east and the west has in recent years given birth to the sciences of comparative ethnology and jurisprudence; the types of communalism in Asian polity have been an eye-opener for the western student of political evolution, while the economic organisations of the east have no less a significance for economists. Social and cultural Anthropology has come to discover a variety of social values and life-schemes but economics still clings more or less to an analysis of western social history. The normal type of evolutions are furnished by the social history of Western Europe chiefly the phase known as industrialism, and all economic forms

and institutions which do not conform to it are regarded as primitive and rudimentary. The influence of conditions which differ by their quality, quantity and order of succession are thus ignored.

Confining ourselves strictly to the sphere of economic forces and institutions, we find in India a differential level and gradation of wages, which is not maintained by competition but is customarily adjusted to the standards of subsistence that take into account the needs of the family and the conditions of craftsmanship in our village communities and different classes or castes of labour. The Indian agrarian organisation has similarly rested on the basis of the association of the peasant with a homestead, so far as possible a hereditary one, and a few acres of land. Accordingly, the family instinct of the Indian for the fixed homestead and appurtenance of land has prevented the rise and development of the economic rent as a separate and separable share of a landlord, being merged in the farmer's earnings, or the communal share thereof, and has given to Indian rent the character of revenue or assessment for protective services rendered whether by the State or the village community, or some constituted local functionary. The strong communal tie has also imposed certain limitations on the individual ownership and use of land by emphasising communal rights and duties. But the changes brought about during the dismemberment of the Moghul Empire and the importation by the early British administrators, brought up in the school of Bentham and Ricardo, of individualistic ideas of property into Indian land revenue settlement have superseded the old Indian notion of rights of different grades possessed by different classes of the community in one and the same land. These have introduced landlordism with proprietary rights as well as the free transfer or alienation of land, which was not previously allowed except with consent of the family, the village community, etc., and have created the characteristic phenomena connected with economic rent. More alarming is the emergence of a class of land labourers, the counterpart of the wage-earning proletariat of the West, who fill our mines, factories and plantations. The fast increase in recent years of this class in some of the provinces is a problem alike of the administrator and the economist on account of the social disintegration it is associated with.

But it is not merely the social tradition which has given a characteristic mould to eastern economic organisation that has been ignored; other formative factors, such as the geographical or climatic, have been equally lost sight of. The scale of consumption, for instance, is adapted to a particular geographical environment. The true theory of food values can thus be formulated only after a comparative investigation into the dietary of different peoples. The level of the nitrogenous equilibrium is different among different races. Certain races have lived and done well with small starchy and sugary food. The importance of the natural organic salts and vitamins is also not sufficiently recognised. If we have the right balance of these, we may need less protein and less calories. Again, many other factors are to be taken into consideration, besides the amount of body weight, climate and so forth. The very

limited dietary of the Chinese and the Indian suggests that while not condemning altogether the orthodox theories of food values, at least as regards the body-building foods, and the natural salts and vitamins, we may be prepared to find that a far smaller amount, at least of protein and of the calories, will suffice provided that certain other conditions be fulfilled.

In India clinical researches tend to show that the level of proteid consumption which is sufficient for healthy subsistence and normal efficiency of an adult stands much lower than the same level for the European adult, being 60 to 70 per cent. of the latter's requirements. This has important bearings not only on the nature and standard of our consumption and nutrition but also on the conditions of employment of labour generally. Our metabolic changes and the processes of wash and repair connected with cell storage and cell discharge, necessitate not intense and intermittent spurts of energy but slow, steady leisurely work. This is partly also the character of Mongoloid consumption and metabolism. Accordingly those lines of manufacturing industry or types of organisation of labour which require long hours of steady, equable work and admit also of leisurely disengagement at intervals are peculiarly suited to the Indian labourer, who has been known to beat his European compeer in such forms of labour in the actual history of British Colonial development. In the recent history of factory industries in India we have too often witnessed the deterioration and degradation of labour, due to the violation or neglect of these primary conditions, and the universal complaint of mill-managers regarding Indian labour are traceable to the instinctive efforts of the labourers to correct the maladjustment in the fields of biological and sociological adaptation alike. This is also responsible for the development of the world's worst slums in our mill-areas, the seedplots of vice and disease, where the sanitary dangers of excessive agglomerations of population have been accentuated by climatic conditions of heat and moisture though our climate itself provides natural remedial agents like sun and rain, if only the plan of open-air and out-door life could be imported into our close-built *bustis* and *chawls*. Examples of economic and social maladjustment are too numerous to mention. A process of substitution, super-imposition or imitation is manifest in such phenomena of economic transition, characteristic of the East, as the disparity between rural and urban economic standards, the decline of cottage industries, the system of exploitative advances, rack-renting and non-occupancy tenancy as well as the development of city economy and exchange independent of and sometimes antagonistic to agricultural life. Abnormal phenomena are those of the employment of forced, penal or decoyed labour, condemned to work in insanitary mines and noxious plantations, excessive ruralisation, a characteristic of economic backwardness or excessive urbanisation, a characteristic of economic parasitism, or again, the control of currency by capitalistic and financial interests. More important politically speaking are the phenomena of conflict of economic types such as those of the prohibition of immigration, or of free imported labour of black, brown or yellow stocks as in

America, Australia, East and South Africa or the forced reservation of vast areas in different continents. Asian labour which has taken a prominent part in the early development of the Colonies is now sought to be excluded on grounds of political expediency, and the economic argument is advanced that it tends to lower the standard of life and consumption of the European labourer though the latter is higher than the requirements of the region. But the claim of the Chinese, Japanese and Indian labourer to participate in the reclamation of Central and Northern Australia, of the Bantu races, supplemented if need be by the Indian stocks, to convert the wildernesses of Central and Eastern Africa is the claim of nature adjudged by science and ratified by humanity. And if international economics perpetuate the demands for the open door and the claims of industrialism to exploit the tropical regions of the East, the banged door in the West must be thrown open, and the claims of the Indian agriculturists, miners and traders in South Africa and America, and of the Mongoloid peoples of the Central Asian Steppes to take part in the pastoral and agricultural development of the Canadian and Alaskan wilds must be recognised. Cognate in nature are the phenomena which arise in the tropics out of an ill-regulated intercourse between rudimentary and advanced economic types, which has brought about the deterioration of white stocks as well as demoralisation and suffering and sometimes slow extinction of black peoples. Nature has decreed that human evolution should include a colour scheme which is an essential factor in the adaptation of man to his surroundings, and which is an outward and visible indication of his fitness for life under certain geographical conditions. And the time has come for international legislation and supervision to ratify the judgment of nature. In protection and segregation, in reserve and assignment to locations of particular races, in shut door or open door, the problems should be approached in the light of a scientific humanitarianism. This necessity will be felt in spite of the gradual and increasing control of industrialism by labour, for whatever promise international socialism may hold out, even groups of labourers are ready to exploit weaker groups of workmen. The new imperialism will recognise sooner or later the necessity of international control and supervision to protect the rights, liberties and welfare of coloured labour, and to revise land and trade policy in the plantations so that the social organisation may evolve unimpeded in the mutual adaptation of stock and clime. Railway, mining and trade rights will be secured by concession companies, and loans, national or international, will be advanced, so that the economic education of the immature or less advanced races of the world will proceed apace. And the benefits of such economic intercourse will be not merely material. The Indian and the Chinese communal consciousness, and its works and experiences will be utilised in a new industrialism that will supply the driving force and initiative to the old communalism and re-educate and renew it by the schemes and methods of group organisation now being advocated in the West. The implied socialisms and humanisms and the variety and vitality of group-life in China and India will furnish valuable data for the present industrial



reconstruction on the West even as agricultural and industrial co-operation, and self government in industry, according to the guild socialist or syndicalist plan will be useful in the revival of the villages and the organisation and federation of industrial communities in Eastern communism. Thus it is that there will emerge a true world scheme of economy, in which superior and backward people will help one another in the exploitation and distribution of the world's material resources and the moral resource both of the West and the East will be utilised in new economic and social experiments for bringing peace and harmony to a discordant and distracted humanity. It is this end that Comparative Economics will have in view, and it seeks to achieve it not only by an investigation into individual and social motivation as impelling economic activity but also ascending by a wider synthesis of life and history into the divergent economic values of different cultural groups and regions as members of the economic federation of humanity.

## DISCUSSION ON DR. MOOKERJEE'S PAPER.

MR. BRAHMAJI after Dr. Mookerjee had summarised the contents of his paper said that he failed to understand why Dr. Mookerjee should have selected the Orient as the custodian of the science of group life, and pointed out that the whole history of Russia was a striking illustration of a country which managed all economic and political institutions on a group basis. He pointed out that group-life existed in Germany also. He then went on to say that co-operation did not begin in India but in Germany, and he showed how it also flourished in France. Referring to village Panchayats he said that these institutions could not possibly flourish unless new life were infused into them and that practically meant converting them into new institutions. Finally he said that he failed to understand how a system of Indian Economics or Oriental Economics could be built up on local doctrines, local ideas and local theories.

DR. MOOKERJEE by way of reply said that a complex question had been introduced about the difference in group life organisation as between India and the West, and pointed out that the history of the 19th century economic and social life in the West had been a history of over-centralisation. Again the Industrial Revolution had brought with it a scheme of life based on economic individuality as a result of which all those customs and usages which existed in the old village communities had been brushed aside. He regretted he could not explain in detail the various points raised in the discussion as he had to run for his train.

MR. KALLI in concluding the discussion said that while recognising the existence of village groups they must remember that these groups had become disorganised, and he very much doubted whether the old communal or group spirit was likely to be of much use in starting new economic and social institutions. Referring to the case of Panchayats he said that the Minister of the Local Government in his Presidency found it very difficult to bring the Panchayat Act into operation because the villagers were not willing to stand for elections. This was convincing proof that it was not possible to revive the old Panchayats wholesale, or even to reconstruct their social and economic institutions on the old basis. In the face of the economic changes that were taking place he thought that though it might be desirable to make use of the old spirit of corporate life, they could not act wholesale through the old institutions. He pointed out that in certain parts there were co-operative credit societies and housing societies on a caste basis, but this he did not think desirable at the present time, and such societies in his opinion were better when formed on an altogether new basis.



THE MEASUREMENT  
OF  
PRICE FLUCTUATIONS  
AND  
THE TIME INTERVALS  
BETWEEN  
PRICE MAXIMA.

BY

S. M. JACOB, Esq., I.C.S.,

SUPERINTENDENT OF CENSUS OPERATIONS, PUNJAB, LAHORE

INDEX OF TEXT.

Paragraph No.	Title.	Page.
SECTION I.		
1	Introductory .. .. .	67
2	The data .. .. .	67
3	Further descriptions of the data and treatment thereof .. .. .	69
4	Fluctuations exhibited as harmonic curves ..	70
SECTION II.		
5	Short-term fluctuations in Punjab prices ..	74
SECTION III.		
6	On the probable intervals between the occur- rence of maxima in physical, social or econo- mic phenomena .. .. .	77

## INDEX OF STATEMENTS.

No.	Title.	Page.
1	Yearly variation in Price of Retail Wheat and steadiness of the same .. ..	80
2	Yearly variation in the Retail Price of Jowar at Lahore and steadiness of the same ..	81
3	Yearly variation in the Retail Price of Jowar at Lahore and steadiness of the same ..	82
4	Yearly variation in the Retail Price of Maize at Lahore and steadiness of the same ..	83
5	Yearly variation in the Retail Price of Maize at Lahore and steadiness of the same ..	84
6	Yearly variation in the Retail Price of Gram at Lahore and steadiness of the same ..	85
7	Yearly variation in the Retail Price of Gram at Lahore and steadiness of the same ..	86
8	Yearly variation in the Retail Price of Gur at Lahore and steadiness of the same ..	87
9	Yearly variation in the Retail Price of Gur at Lahore and steadiness of the same ..	88
10	Periodicity of Retail Wheat at Lahore ..	89

## INDEX OF DIAGRAMS.

*Diagram 1.*—Retail Wheat in Lahore (in seers per rupee).

- (1) First Period .. 1874-1897.
- (2) Second Group .. 1898-1921 (excluding 1912)
- (3) Joint Period.

*Diagram 2.*—Variations in the percentage Retail Price of Jowar at Lahore and Standard Deviations—

- (1) First Period .. 1874-1897.
- (2) Second Group ... 1898-1921 (excluding 1905, 1906, 1911, 1912, 1914, 1915, 1918 and 1919).

*Diagram 3.*—Variations and Standard Deviations of combined Group of 40 years.

**Yearly Variation in the Retail Price of Maize at Lahore and  
Steadiness of the same.**

*Diagram 4.*—Mean Price—

(1) First Group 1885-1897, 13 years.

(2) Second Group 1898-1921 (excluding 1906-1912).

*Diagram 5.*—Standard Deviations of above.

*Diagram 6.*—Mean Price of Joint Group of 35 years.

*Diagram 7.*—Standard Deviations of Joint Group.

**Yearly Variation in the Retail Price of Gram at Lahore and  
Steadiness of the same.**

*Diagram 8.*—Mean Price—

(1) First Group .. 1874-1897, 24 years.

(2) Second Group .. 1898-1921, 24 years.

*Diagram 9.*—Standard Deviations of above.

*Diagram 10.*—Mean Price of Joint Group of 48 years.

*Diagram 11.*—Standard Deviation of Joint Group.

**Yearly Variation in the Retail Price of Gur at Lahore and  
Steadiness of the same.**

*Diagram 12.*—Mean Price of First Group 1885-1897, 13 years.

*Diagram 13.*—Standard Deviations of the First Group.

*Diagram 14.*—Mean Prices of Second Group 1898-1921, 24 years.

*Diagram 15.*—Standard Deviations of the First Group.

*Diagram 16.*—Mean Prices of Joint Group 1885-1921, 37 years.

*Diagram 17.*—Standard Deviations of Joint Group.

**Periodogram Curve, Retail Wheat at Lahore. The Amplitudes  
of the Main Periods of Fortnights from 2-48.**

*Diagram 18.*—First Group of 24 years, 1874-1897.

*Diagram 19.*—Second Group of 23 years, 1898-1921 (excluding 1912).

**Probable Differences between the Greatest and the Least Values of  
K. Figures calculated from N. Observations, grouped for calcula-  
tions of Harmonic Periodicity.**

*Diagram 20.*—First Group of 24 years, 1874-1897.



# THE MEASUREMENT OF PRICE FLUCTUATIONS AND OF THE TIME INTERVALS BETWEEN PRICE MAXIMA.

## Section I.

### 1. Introductory.

There is little doubt that most people would prefer to hear about a new type of phenomenon rather than attend to the precise arithmetic expression of a group of recognized facts. Scientists are in many ways quite ordinary people, and are often endowed with a similar preferential interest. It is probably for this reason that the search for new periodicities in food prices, or in the annual yield of the harvests, or in the occurrence of years of great or small rainfall, has been more actively pursued than has the examination of the annual fluctuation of prices, which is based on a fact of common observation, namely the recurrence of the seasons.

Yet I venture to think that, apart from its own intrinsic value, the quantitative analysis of the details of annual price fluctuations, will be useful when engaged in seeking for periodicities which are unknown in advance. When, indeed, we thoroughly understand the numerical magnitude and characteristics of the yearly variation, we shall be much less likely to be deceived as to the significance of the values of the constants hammered out by the automatic machinery of *peribologram* and *Fourier Series*.

This quantitative examination will lead up to the examination of the results of harmonic analysis as applied to short term fluctuations of prices, for periods varying from 2 official fortnights to 18 official fortnights. As there are 24 official fortnights in the year this analysis will cover periodicities from 1 month to 2 years, though no broken periods of a fortnight have been included in the periods examined.

The paper will close with a theorem on the closely related subject of the time-intervals between successive price maxima, this theorem enabling us to deduce the probability of any particular time-interval. The correspondence between the theoretical frequency and the observed frequency of price-intervals, for wheat in India and England, and for American Cotton at Liverpool, will be exhibited.

### 2. The Data.

The annual variation of the retail prices of the 5 food-stuffs, wheat, jowar, maize, gram and gur at Lahore has been examined. The prices used are those known as the *Fortnightly Gazette* prices, which are supposed to represent prices as they stood in the principal market for the particular commodity on the 15th and on the last day of the months. The actual intervals between the dates for which prices are recorded vary, therefore, from 13 days for the second fortnight of February in an ordinary year, to 16 days. Properly speaking the data should be corrected for the irregular lengths of the official fortnight, but the error introduced by ignoring this irregularity is small with respect to the much more serious



errors in the recorded prices, approximations, and the "dhur" think it a great advantage that it is to the advantage of the actual price, it could always be such error may some of which the Gazette price industrial surveyor. The

			1911-12		1912-13		1913-14		1914-15	
			1911-12		1912-13		1913-14		1914-15	
Wheat	..	..	100	100	100	100	100	100	100	100
Jowar	.	..	100	100	100	100	100	100	100	100
Chh	.		100	100	100	100	100	100	100	100
Bengal Coal	..	.	100	100	100	100	100	100	100	100

These are, of course, extreme cases from a single source, and even in them the Tahsildar was able to give evidence that his quotations were accurate (see also the instance emphasizes the need for caution in blindly accepting a quotation as reliable, and the inaccuracies may be affected conclusions based on averages of a good many years.

In the method of examination of the prices adopted here, errors are to a large extent eliminated by dealing only in the percentage level of any commodity expressed as a percentage of the preceding years' annual average price for that commodity so that a systematic percentage error of a quoted price in excess or defect will not alter the working ratio. There is no means, however, of deducing the true percentage price of a commodity from quotations which suffer from non-systematic errors, and we are obliged to fall back on a mathematical graduation, based on the unproved assumption that prices will, on an average, over a long series of years, exhibit no abrupt fluctuations.

This smoothing-out process is a common-place of all statistical and physical research, and its validity depends on the closeness with which the adopted graduation formula expresses the actual law underlying the data. In the case of the seasonal variation in prices, it is clear that some periodic function is required, and this condition rules out the application of parabolic, or exponential curves used in actuarial work, or Pearsonian Frequency curves. The obvious function to use is, therefore, the first harmonic of the Fourier Series, and this function has been calculated for all the seasonal price data given hereafter.



the test of place — or time extrapolation — this method is put out of court as a practical solution. The commonly adopted alternative is to compare each price with the running average, or mean of the observed prices, equidistant ahead and astern of the central price. The procedure seems to be open to the practical objection that the mean of the running average, that is the running average price at the present moment, is indeterminate the result being thus more or less a prediction of the price, say, a month ahead, which should not necessarily be used to predict two, three, four or more months ahead.

The course adopted in this paper has been to divide each fortnightly price by the mean of the 24 antecedent fortnightly prices and express the result as the percentage. This was done in the case of wheat, paddy, maize and gram; but for guaranteeing the precision of time, the price in a particular fortnight was divided by the average price for the year ending on the previous 31st December. The figure obtained for wheat will thus not be exactly comparable with those of the other four crops, but the difference will probably not be serious.

#### 4. Fluctuations exhibited as harmonic curves.

When each price had been expressed as a percentage, the average was found for each fortnight over a term of years, and the first harmonics of the averages was calculated. In addition, the standard deviations from year to year of each of the fortnightly percentage prices were determined, this standard deviation being a measure of the divergence of the percentage price from its own mean, that is to say, that not only is the height of the yearly tidal wave of prices, but also the extent to which economic storms may super-impose special crests or hollows, has been measured. The greater, then, the standard deviation is for any particular fortnight the more reason we will have to anticipate economic disturbances at that epoch. The results obtained therefore (always with the limitation that random sampling may be at work) ought to be of considerable value to the business man and to the statesman who would launch his enterprise at the most favourable state of the economic tide.

The directly calculated percentage prices, and their standard deviations and co-efficients of variations, are given in statements I-9. The first harmonics which represent the closest fitting of a sine or cosine curve with a period of one year are as follows:—

First Harmonics of Annual Grain Prices (Lahore) Retail in seers per rupee. Prices as percentages on 24 preceding Fortnights Average. Referred to First fortnight January as origin. For a calendar year  $t=1$ .

	Percentage Prices.	Standard Deviations.
<b>WHEAT.</b>		
Group I	$.. 99.1 + 5.2 \sin (2\pi t + 278^\circ)$	$15.5 + 3.3 \sin (2\pi t + 129^\circ)$
Group II	$.. 98.9 + 7.8 \sin (2\pi t + 288^\circ)$	$14.3 + 2.1 \sin (2\pi t + 175^\circ)$
Joint Period	$99.0 + 6.6 \sin (2\pi t + 283^\circ)$	$15.0 + 2.5 \sin (2\pi t + 143^\circ)$

Period		Standard deviation	
		JOWAR	
Group I	1874-1897	2.6	1.6
Group II	1898-1921	3.9	2.1
Entire Period	1874-1921	3.1	1.7
		RAZI	
Group I	1874-1897	2.6	1.6
Group II	1898-1921	3.9	2.1
Entire Period	1874-1921	3.1	1.7
		GRAM	
Group I	1874-1897	2.6	1.6
Group II	1898-1921	3.9	2.1
Entire Period	1874-1921	3.1	1.7
		GUR	
Group I	1874-1897	2.6	1.6
Group II	1898-1921	3.9	2.1
Entire Period	1874-1921	3.1	1.7

It will be observed that on the whole the standard deviation for each crop between the standard and price movements is not far removed from unity. \* The argument is put forward that the standard deviation of the standard deviation is well represented by unity and may be regarded as indicating that on an average the standard deviation of crop prices is dependent on the standard deviation of the harvest, i.e. comparatively measured by non-periodic forces, among some political and international complications.

To get a clear idea of the nature of the seasonal change in price, the figure in the statement already referred to have been exhibited graphically in diagram 1-17. These diagrams, however, I think, better than any amount of description, what is the form of annual price curves.

In the figure given above the phase of all the first harmonics have represented the interval between the last ascending node and the beginning of the calendar year. In discussing price fluctuation, however, it is desirable to refer the price of each crop to the harvest time, and the following results are obtained which show the interval that ordinarily elapses between the harvest and the phase at which prices are a minimum (that is to say, when most seeds per acre are sold).

\*The only marked exception of this rule appears in the case of the standard deviation for gram, where the phases for the first and second group of years differ by no less than 1.36, corresponding to an interval of just over 1½ months. As a result of this the greatest unsteadiness of gram prices which, prior to 1898, occurred at the end of October and the beginning of November, during the last 24 years, has shifted to about May or June. The amplitude, too, of the standard deviation has increased from 2.6 for the 24 years 1874-1897 to 3.9 for the 24 years 1898-1921. One may hazard the supposition that in recent years there has been more speculation in this crop at and after harvest time than previously.

† It is quite conceivable, however, that the historian of the future will regard the last 50 years in the Punjab, from an economic aspect, as a period of halcyon calm!

Crop	Period elapsing between harvest and time of cheapest crop prices		Time elapsing between harvest and period of greatest unsteadiness of price	
	Months.	Weeks	Months.	Weeks.
Wheat (1874—1897)				
„ (1898—1921)	..	2	1	..
Jowar (1874—1897)	6	2	5	..
„ (1898—1921)	1	..	..	1
Maize (1885—1897)	3½	..	17	..
„ (1898—1921)	6	..	67	..
Gram (1874—1897)	11	..	6	..
„ (1898—1921)	½	..	12	..
Gur (1885—1897)	..	..	9½	..
„ (1898—1921)	½	..	9½	..

The conclusions to be drawn appear to be that even with such important crops as wheat, gram and gur, the full effect of the harvest in reducing prices is experienced almost simultaneously with the appearance of the crop on the market; whereas for jowar and maize the full effect of the harvest is not produced till many months later. This is particularly marked in the case of jowar for the period prior to 1898, and for maize since that date. In the latter case in fact the observed time of lowest prices is at the end of April. Practically all prices, it should be noted, are steadier during the middle of the year than at any other time. The business community therefore appears to be more confident, and to be less inclined to gamble on the monsoon than are the framers of Indian Budgets.

It is impossible to notice all the interesting points suggested by the curves, but the following resumé, showing the annual range and unsteadiness of prices for all the years for which the statistics have been considered, may be given—

Crop.					Annual Range	Unsteadiness as represented by mean of standard deviation throughout the year.
					Per cent	
Jowar	..	..	..	..	8·3	21·7
Gur	..	..	..	..	8·1	9·0
Maize	..	..	..	..	7·5	23·3
Wheat	..	..	..	..	6·6	15·0
Gram	..	..	..	..	4·3	19·4

Thus jowar is the crop with the greatest annual range of prices, whereas maize prices exhibit the least average unsteadiness throughout the year. The great annual range of grain prices must be interpreted in the light of war conditions which affected the prices of grain, the annual range having risen from 6.9 per cent prior to 1898 to 8.9 per cent, since that date. We have tried to estimate and the recovery of the German Rationing Index is certainly that a return to the neighbourhood of the pre-war annual range of about 7 per cent is imminent. The falling tendency of grain prices here year to year is a commentary on the advantages of uniformity in world prices, and which, when it is remembered that of the 5 crops examined, jowar, though to be the most important for

In seeking a description of the very highly fluctuated phenomenon of annual range and unsteadiness of price in the countries noted above, the best is probably that already used namely to compare the level of price with the tidal wave of the sea which, strong enough, needs no such other in yearly groups. The tendency of the rhythm of the crest and trough should occur at regular intervals, a recognition of the uniform recurrence of the seasons and harvests. But superposed on this tidal system, upples or waves due to economic, physical, breezes or hurricanes, disturb the rhythmic rise and fall of price, and give con, to the non-habitual observer seem to obliterate all effect of the annual ebb and flow.

It is clear that we have moved but part of the way toward a state of interdependence on the oceans, when periods of harvest plenty alternated with want and famine, and that it is very necessary to join up India's economic future closely with the more smoothly flowing ocean of the world market.

The task of the statesman, and I may add, of the enlightened business man, is to take steps to reduce the extent of the annual rise and fall to reasonable dimensions, and to prevent the growth processes from being unduly ruffled by political and/or economic storms.

My figures show, for the crops examined, to what extent this fundamental object has been achieved in the Punjab.

## SECTION II.

## 5. Short-term fluctuations in Punjab prices.

Attention has already been drawn to the localities in which the search for long-term weather, crop and price cycles has been made by scientific men. Such cycles have been investigated by Dr. (now Sir) Napier Shaw, \* Sir Arthur Schuster, † Prof. H. L. Moore, ‡ and most recently of all by Sir William Beveridge, §. Schuster's theory is an illustration of a sound mathematical theory, but it seems doubtful whether the structure is yet complete, and, in applying Schuster's theory, some limitations have been lost sight of by subsequent writers.

In all the investigations quoted the reality of the period has been judged by a comparison of the magnitude of the intensity, namely the square of the amplitude, with the average "intensity" for all the period sought. According to Schuster the probability that any particular intensity should be  $k$  or more times the mean value of the intensity is  $e^{-k}$ , but as Dr. Gilbert Walker || has pointed out in a fundamental theorem on the subject, if a very large number of intensities are calculated, the probability that the greatest of these intensities is  $k$  or more times the mean is very far from being  $e^{-k}$ .

We may carry Walker's analysis a step further by including not only the probable value of the greatest intensity out of  $m$  observed intensities, but also the actual frequency distribution of the greatest intensities in repetitions of the  $m$  sets of observed intensities.

The extension is simple. For let the frequency with which the greatest intensity lies between  $i$  and  $i+di$ , be  $f(i) di$ , then, clearly the chance that the greatest intensity is less than  $c$  is

$$\int_0^c f(i) di / \int_0^\infty f(i) di$$

Then provided  $\int_0^\infty f(i) di = 1$ , we get

$$\int_0^c f(i) di = (1 - e^{-a/c})^m$$

\* Proc. Roy. Soc. Series A, vol. 78, p. 69.

† Proc. Roy. Soc. vol. 77 (1905), p. 741, "on the periodicities of sunspots" Phil. Trans. A, vol. 206, 1906.

‡ "The periodogram of magnetic declination as obtained from records of the Greenwich observatory during the years 1871-1895".

§ "Crop Cycles in the United Kingdom and in France", Journ. Roy. Stat. Soc., May 1920, p. 445, and other papers.

|| "Weather and harvest cycles", The Economic Journal, December 1921 and Journ. Roy. Stat. Soc., May 1922.

¶ "On the criterion of the reality of relationships or periodicities." Memoirs, Indian Met. Dept., vol. XXI, part IX, 1912.

Whence differentiating with respect to  $a$ ,

$$f'(a) = \frac{m}{a} \left( 1 - e^{-\frac{m-1}{a}} \right) - \frac{m-1}{a^2} e^{-\frac{m-1}{a}}$$

and it is easy to show that the integral of  $f(a)$  from 0 to  $\infty$  is unity. The actual values of  $f(a)$  for various values of  $m$  and  $\frac{m-1}{a}$  are given in the subjoined table, and it will be seen that as  $m$  increases to 50 and over, the modal value of the greatest intensity occurs for values of  $\frac{m-1}{a}$  between 1 and 5.

Table giving the value of  $\frac{m}{a} \left( 1 - e^{-\frac{m-1}{a}} \right) - \frac{m-1}{a^2} e^{-\frac{m-1}{a}}$

for various values of  $m$  and  $\frac{m-1}{a}$  (the values of the greatest intensity occurring in the Punjab from 1890 to 1900 are included).

	$m = 10$	$m = 20$	$m = 30$	$m = 40$	$m = 50$	$m = 60$	$m = 70$
$a/a = 1$	0002595	00012076	0006495	00090025	00097060	00094160	00091160
$a/a = 2$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 3$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 4$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 5$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 6$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 7$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 8$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 9$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 10$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 15$	00000000	00000000	00000000	00000000	00000000	00000000	00000000
$a/a = 20$	00000000	00000000	00000000	00000000	00000000	00000000	00000000

In the case of  $m$  equal to 100, and this is less than the number of amplitudes worked out by Sir William Beveridge it would not be at all surprising to find a ratio of  $\frac{m-1}{a}$  greater than 8 or 9, even as a matter of pure chance.\*

The theoretical treatment for a small finite number of observations seems very difficult; and the present writer has set himself, therefore, only the much simpler task of applying periodogram analysis to Punjab fortnightly prices, not with the idea of discovering any new periodicities, but merely to see how the known yet rery variation in prices, which

\* The chance of the greatest intensity being 14.7 times the average as found by Sir William Beveridge in his Economic Journal paper, for a period of 15 years, is too small to be seriously considered, but then Schuster's theory does not apply accurately to values of the amplitudes calculated from only 20 summations.



## SECTION II.

## 5. Short-term fluctuations in Punjab prices.

Attention has already been drawn to the direction which the search for long-term weather, crop and price cycles should take among scientific men. Such cycles have been investigated by Dr. James (Sir Napier) Shaw, \* Sir Arthur Schuster, † Prof. H. L. Moore, ‡ and most recently of all by Sir William Beveridge. § Schuster holds the foundations of a sound mathematical theory, but it seems doubtful whether the structure is yet complete, and, in applying Schuster's theory, some limitations have been lost sight of by subsequent writers.

In all the investigations quoted the reality of the periods has been judged by a comparison of the magnitude of the intensity, namely the square of the amplitude, with the average "intensity" for all the periods sought. According to Schuster the probability that any particular intensity should be  $k$  or more times the mean value of the intensity is  $e^{-k}$ , but as Dr. Gilbert Walker ‖ has pointed out in a fundamental theorem on the subject, if a very large number of intensities are calculated, the probability that the greatest of these intensities is  $k$  or more times the mean is very far from being  $e^{-k}$ .

We may carry Walker's analysis a step further by finding not only the probable value of the greatest intensity out of  $m$  observed intensities, but also the actual frequency distribution of the greatest intensities in repetitions of the  $m$  sets of observed intensities.

The extension is simple. For let the frequency with which the greatest intensity lies between  $i$  and  $i + \delta i$ , be  $f(i) \delta i$ , then, clearly the chance that the greatest intensity is less than  $c$  is

$$\frac{\int_0^c f(i) di}{\int_0^\infty f(i) di}$$

Then provided  $\int_0^\infty f(i) di = 1$ , we get

$$\int_0^c f(i) di = (1 - e^{-ac})^m$$

\* Proc. Roy. Soc. Series A, vol. 78, p. 69.

† Proc. Roy. Soc. vol. 77 (1905), p. 741, "on the periodicities of sunspots" Phil. Trans. A, vol. 206, 1906.

‡ "The periodogram of magnetic declination as obtained from records of the Greenwich observatory during the years 1871-1893".

§ Stokes' commendation, volume (1890), p. 107.

† "Crop Cycles in the United Kingdom and in France". Journ. Roy. Stat. Soc., May 1920, p. 445, and other papers.

§ "Weather and harvest cycles". The Economic Journal, December 1921 and Journ. Roy. Stat. Soc. May 1922.

‖ "On the criterion of the reality of relationships or periodicities." Memoirs, Indian Met. Dept., vol. XXI, part IX, 1912.

Whence differentiating with respect to  $\theta$ ,

$$f(\theta) = \frac{m}{n} \left( 1 - e^{-\frac{m}{n}\theta} \right)^{m-1} \frac{e^{-\theta}}{\theta},$$

and it is easy to show that the integral of  $f(\theta)$  from 0 to  $\infty$  is unity. The actual values of  $f(\theta)$  for various values of  $m$  and  $\frac{n}{a}$  is given in the subjoined table, and it will be seen that a minimum value of 50 and over, the modal value of the given intensity occurs for values of  $\frac{n}{a}$  between 4 and 5.

Table giving the value  $\frac{m}{n} \left( 1 - e^{-\frac{m}{n}\theta} \right)^{m-1} \frac{e^{-\theta}}{\theta}$

and giving the distribution of the values of the greatest of  $m$  observations of a variable from a group of  $n$  observations of amplitude  $a$

	$m = 10$	$m = 20$	$m = 30$	$m = 40$	$m = 50$	$m = 60$
$\theta/a = 1$	0000279,0	0001247,6	0000482,1	0000302,1	0000216,0	0000166,0
$\theta/a = 2$	0000029,2	0000024,9	0000007,1	0000004,8	0000003,0	0000002,6
$\theta/a = 3$	0011,116,1	0077,318,7	0000000,1	0071,261,3	003,809,4	001,724,3
$\theta/a = 4$	015,081,0	0267,829,1	001,000,1	000,214,2	000,180,0	000,780,1
$\theta/a = 5$	003,014,8	011,874,1	000,000,1	000,081,8	000,117,0	000,510,1
$\theta/a = 6$	0011,210,0	0015,100,0	000,100,1	000,003,1	000,013,0	000,875,2
$\theta/a = 7$	0000011,3	0014,001,3	000,000,2	000,000,3	000,000,0	000,000,5
$\theta/a = 8$	0000011,0	0000000,0	000,000,1	000,000,0	000,000,0	000,000,0
$\theta/a = 9$	001,232,7	002,167,1	000,000,1	001,014,7	000,000,3	002,110,0
$\theta/a = 10$	000,153,8	000,000,2	001,000,2	001,814,8	002,204,0	001,010,6
$\theta/a = 15$	000,003,1	000,000,1	000,000,2	000,002,2	000,005,2	000,000,6
$\theta/a = 20$	000,000,0	000,000,0	000,000,1	000,000,2	000,000,1	000,000,2

In the case of  $m$  equal to 100, and this is less than the number of amplitudes worked out by Sir William Beveridge it would not be at all surprising to find a ratio of  $\frac{n}{a}$  greater than 8 or 9, even as a matter of pure chance.\*

The theoretical treatment for a small finite number of observations seems very difficult; and the present writer has set himself, therefore, only the much simpler task of applying periodogram analysis to Punjab fortnightly prices, not with the idea of discovering any new periodicities, but merely to see how the known yearly variation in prices, which

\* The chance of the greatest intensity being 14.7 times the average as found by Sir William Beveridge in his Economic Journal paper, for a period of 15 years, is too small to be seriously considered, but then Schuster's theory does not apply accurately to values of the amplitudes calculated from only 20 summations.

as has been seen in section I, is a well marked phenomenon, will exhibit itself among a host of other amplitudes. For this purpose the fortnightly retail prices of Punjab Wheat at Lahore from 1871—1921, have been taken and examined for periodicities of 2 to 48 official fortnights, that is to say, from a time of 15 days, approximately, to 2 years. The amplitudes and phases are given for each group of years 1874—1897, and from 1898—1921 separately, in statement 10, while the periodograms for the 2 groups of years are exhibited in diagrams 18 and 19. The results do confirm, I think, our *a priori* knowledge, of the existence of an annual fluctuation, but no other periodicity is outstanding in both series of years. The following results are obtained :—

Years.	Maximum intensity.	Observed Mean intensity.	Period.	Ratio of maximum to mean intensity.
1874-1897 ...	55.50	8.21	46 fortnights	6.76
1898-1921 ...	57.15	4.44	24 „	12.86

The results are presented without comment, except to observe that the amplitudes show a general tendency to increase with the length of the period, which suggests that random sampling is at work for the higher periods, where only a few summations are available.\*

\* These seem to me many difficulties of interpretation, which must be solved before claiming the discovery of real periodicities. A first step is to compare the histogram of computed amplitudes with Schuster's theoretical frequency distribution

$$f(\rho) = \frac{N}{2\sigma^2} \cdot e^{-\frac{N\rho^2}{4\sigma^2}}$$

The immediate doubt arises as to whether the theoretical value of the "expectancy" should be inserted in this formula, or the observed mean intensity. Curves have been drawn, on both assumptions, for Sir William Beveridge's complete series, and for the 2 Punjab wheat periodograms. They could not, however, be reproduced here.

### SECTION III.

#### 6. On the probable intervals between the occurrence of maxima in physical, social or economic phenomena.

It may be objected that a phenomenon may be of perfectly regular recurrence, but if its magnitude at any particular time is not represented by a sine or cosine curve, the amplitude of the first harmonic will not do full justice to the regularity. It is even possible, for example, that the periodogram analysis of the future may be based on other than Fourier Series.\*

From a practical point of view the actual times of a maximum or minimum price may be of more importance than the general aspects of the ebb and flow of values, and all business men, whether they are scientists or not, must be interested in estimating the interval that must elapse between one boom and the next.

The following investigation of the distribution of such intervals will, therefore, be of use.

If we assume that the time axis is divided into discrete intervals, and that the ordinate representing the magnitude of any variable is given at unit intervals of time, then the straight lines joining the values of the ordinate at successive units of time will have a series of maxima. It would, in the absence of any knowledge to the contrary, be reasonable to suppose that the magnitude is just as likely to increase as to decrease from the value it has at any given moment. It is assumed that the recorded differences of the magnitude are sufficiently fine to exclude the chance of neither an increase or decrease being recorded.

To test whether the supposition as to the equal probability of a rise or fall will explain the observed facts, let us assume generally, in the first instance, that the probability of the variable continuing to do between interval  $n$  and  $n+1$  what it did between interval  $n-1$  and  $n$ , to be  $p$  if the value is rising and  $q$  if it is falling. It seems necessary to assume that  $p=q$  for most series of statistics, otherwise the magnitude concerned would tend to increase or decrease without limit. Let the tendency, then, for the phenomenon to persist in the direction it is already moving in, be  $S$ , and the tendency to change be  $1-S$ .

Then the chance of a change of direction occurring after  $p$  intervals of time, measuring from the beginning of the interval which marks a change in direction, is clearly  $S^{p-1}(1-S)$ . The chance that another change of direction takes place after  $q$  further intervals is also

$$S^{q-1}(1-S).$$

\*Cp. L. N. G. Filon, "On the expansion of Polynomials in series of Functions",  
Proceedings of the Lond. Math. Soc., Ser. 2, vol. 4, parts 5 and 6.

Hence if we start with a maximum the chance that another maximum will occur  $N$  intervals later is the sum of such products as  $S^{p-1} (1-S) \times S^{q-1} (1-S)$

where  $p \geq 1$ ,  $q \geq 1$  and  $p+q=N$

i.e., the required chance of an interval  $N$  between maxima is-

$$\sum_{p=1}^N \sum_{q=1}^{N-p} \left( S^{p+q-2} (1-S)^2 \right)$$

The summation extends from  $p=1$  to  $p=N-1$ , and hence we have

$$C_N = (N-1)S^{N-2}(1-S)^2$$

So far we have obtained a general formula, which involves no appeal to the data themselves, and in order to apply it to a particular set of prices, we shall need only to know from the figures themselves, the total number of maxima, which have occurred in a series of years, and the total time from the beginning to the end of the series. This is equivalent to knowing the mean interval between price maxima, and the total time of observation.

If we call  $\mu_1$ , the mean time-interval between maxima, we find

$$S = 1 - \frac{2}{\mu_1}$$

The calculation of  $\mu_1$  allows, then, the immediate application of the theoretical frequency formula.\*

The formula has been applied to the following series:—

- (1) Monthly average Gazette prices (per quarter of 480 lbs.) of English wheat since 1859. Data taken from the London Grain, Seed and Oil Reporter, August 25, 1922.
- (2) Weekly average prices of American Middling Fair Cotton at Liverpool, since 1912. Data taken from the International Year Book of Agricultural Statistics, 1909—1921, p. 444.
- (3) Fortnightly retail wheat prices at Lahore, given in the Punjab Gazette from 1872—1922.

The Diagrams 22, 23, and 24 show the correspondence of the calculated and observed frequencies, which is remarkably good for English wheat prices, fair for American cotton, and poor for retail wheat in the Punjab. Without undue consideration for the theoretical work I am inclined to attribute the want of agreement of the Indian figures to the known inaccuracy of the data. Only the collection of a really reliable series of prices will enable further tests to be applied.

\*The equation obtained is, of course, a special case of a truncated Pearson's Type III probability curve,  $Y = y_0 \cdot \frac{p \cdot x}{a} \left( 1 - \frac{x}{a} \right)^p$  which requires the calculation of 3 moments instead of only the one required in the text.

The following table shows the observed and calculated frequencies of the intervals for the three cases examined :

Time interval.	ENGLISH WHEAT MONTHLY GAZETTE PRICES.		AMERICAN COTTON WHESTER LIVERPOOL L PRICES.		INDIAN WHEAT RETAIL MONTHLY PRICES AT LAHORE.	
	Observed.	Calculated.	Observed.	Calculated.	Observed.	Calculated.
2	20	21.16	20	19.23	34	16.11
3	29	20.99	24	21.92	28	22.55
4	27	19.19	12	18.71	30	23.68
5	22	20.58	16	14.25	20	22.16
6	19	15.96	11	19.15	8	19.66
7	12	11.26	9	6.91	11	16.25
8	8	7.89	2	4.62	16	13.27
9	5	5.41	4	2.90	4	10.01
10	4	3.05	1	1.97	10	8.36
11	2	2.44	3	1.23	3	6.50
12	1	1.61	2	.76	3	5.01
13	1	1.00	..	..	2	3.82
14	0	.68	..	..	3	2.88
15	0	.44	..	..	0	2.19
16	1	.28	..	..	1	1.64
17	..	..	..	..	0	1.22
18	..	..	..	..	5	.91
19	..	..	..	..	4	.68
20	..	..	..	..	0	.50
21	..	..	..	..	2	.37
22	..	..	..	..	0	.27
23	..	..	..	..	1	.20

The summarised results of the three cases examined are—

	Mean interval between maxima.	Value of S
English wheat prices	.. 5.62 months	.. .601
American cotton ..	.. 4.7 weeks	.. .570
Punjab wheat ..	.. 6.68 fortnights	.. .701

The fact that in all three cases S is greater than one-half, indicates that prices, during the years for which the data have been examined, were, on the whole, possessed of inertia, and tended after a rise or fall to continue rising or falling as the case might be. The probability of this continuance is given by the values of S. To what extent this probability affords a safe guide to prediction of the future must be left to a later examination, but at least the formula adequately sums up some of the features of the past behaviour of prices, in respect of the intervals between consecutive maxima.

In concluding I wish to express my thanks to Mr. Abdul Majid, M.A., and to Mr. Balwant Singh, B.Sc., who have given great assistance in the computations.

## STATEMENT 1.

*Yearly variation in price of retail wheat and steadiness of the same.*

Price measured as percentage of actual price in seers per rupee to average of previous 24 fortnights ( $\frac{1}{2}$  months).

First period 1874—1897.

Second period 1898—1921 (1912 excluded).

Time.				MEAN PRICE.		STANDARD DEVIATION.	
				Period I.	Period II.	Period I.	Period II.
January	..	..	(i)	94	92	16.5	14.8
			(ii)	94	92	15.7	15.8
February	..	..	(i)	93	92	17.2	13.6
			(ii)	97	97	17.8	11.6
March	..	..	(i)	96	95	16.0	10.6
			(ii)	99	99	15.4	12.2
April	..	..	(i)	98	100	14.5	11.1
			(ii)	101	103	12.8	13.5
May	..	..	(i)	105	108	11.8	12.8
			(ii)	105	108	11.5	13.2
June	..	..	(i)	106	109	11.5	13.8
			(ii)	106	108	11.9	16.1
July	..	..	(i)	105	106	12.9	13.7
			(ii)	102	103	12.2	13.1
August	..	..	(i)	100	101	14.1	13.5
			(ii)	99	101	14.4	14.1
September	..	..	(i)	100	99	16.2	16.5
			(ii)	101	98	19.2	16.4
October	..	..	(i)	100	98	19.7	17.1
			(ii)	98	96	18.8	16.9
November	..	..	(i)	96	97	18.5	16.2
			(ii)	96	97	17.7	16.0
December	..	..	(i)	95	92	17.9	14.7
			(ii)	95	92	17.5	15.3
				Mean =		371.7	342.9
						15.5	14.9

# STATEMENT 2.

*Yearly variation in the retail price of jowar at Lahore and steadiness of the same.*

(Price measured as percentage of actual price in seers per rupee to average of previous 21 fortnightly Gazette retail prices.)

First period, 1871—1897.

Second period, 1898—1921. (Excluding years 1905, 1906, 1911, 1912, 1914, 1915, 1918 and 1919.)

Time.			Mean Price.		Standard Deviation.		Coefficient of variation.	
			(I)	(II)	(I)	(II)	(I)	(II)
January	..	(i)	100	112	22'22	25'37	22'20	22'35
		(ii)	100	110	21'57	25'36	20'30	23'53
February	..	(i)	103	109	20'60	25'38	25'30	24'20
		(ii)	101	106	20'42	23'06	26'06	21'70
March	..	(i)	101	101	22'70	22'18	21'57	21'30
		(ii)	101	107	23'00	24'13	22'08	22'50
April	..	(i)	99	102	21'71	20'39	23'00	19'70
		(ii)	108	99	23'30	19'12	25'35	18'35
May	..	(i)	91	97	22'26	21'83	23'02	22'10
		(ii)	92	95	20'01	19'78	21'71	17'85
June	..	(i)	90	91	19'50	16'75	18'32	17'39
		(ii)	86	91	17'53	15'86	20'13	17'30
July	..	(i)	85	88	15'53	15'53	18'06	17'60
		(ii)	90	97	17'00	18'81	18'80	19'37
August	..	(i)	90	101	17'11	17'77	19'29	17'10
		(ii)	98	110	20'80	24'42	21'02	22'17
September	..	(i)	102	111	20'19	20'80	19'87	18'94
		(ii)	102	108	23'67	20'33	23'20	18'75
October	..	(i)	105	108	23'86	21'32	22'70	19'83
		(ii)	107	106	24'73	19'78	23'41	18'75
November	..	(i)	105	104	21'46	20'32	20'85	19'50
		(ii)	109	104	24'61	19'02	22'52	18'28
December	..	(i)	110	106	24'03	23'40	22'65	19'18
		(ii)	109	105	25'72	20'72	23'56	19'78



## STATEMENT 3.

*Yearly variation in the retail price of jowar at Lahore and steadiness of the same*

(Prices expressed as percentage of actual price in 1901 per rupee to average of previous 21 fortnightly Gazette retail prices)

Joint period of 40 years, *i.e.* 1871-1921 (Excluding years 1905, 1906, 1911, 1912, 1914, 1915, 1918 and 1919)

Time				Mean price	Standard deviation	Coefficient of variation
January	.	.	(i)	107	21.58	22.45
			(ii)	107	21.37	21.90
February	..	..	(i)	105	20.99	21.69
			(ii)	103	20.24	21.13
March	..	.	(i)	102	21.20	21.11
			(ii)	100	21.89	22.67
April	..	..	(i)	101	21.17	21.01
			(ii)	98	21.79	22.19
May	..	..	(i)	99	22.15	22.20
			(ii)	93	18.82	20.18
June	..	..	(i)	92	16.70	18.24
			(ii)	85	17.09	19.13
July	..	..	(i)	85	15.72	18.40
			(ii)	91	18.09	19.40
August	..	.	(i)	96	18.80	19.61
			(ii)	103	23.14	22.42
September	.	..	(i)	105	20.94	19.89
			(ii)	105	22.60	21.57
October	..	..	(i)	106	22.91	21.64
			(ii)	106	22.89	21.51
November	..	..	(i)	105	21.32	20.34
			(ii)	107	22.69	21.17
December	..	..	(i)	109	23.29	21.45
			(ii)	107	23.96	22.31

## STATEMENT 4.

*Yearly variation in the retail price of maize at Lahore and stations  
of the amt.*

(Price measured as percentage of the actual price in current year  
to average of previous 21 fortnightly Gazette retail prices.)

First period of 13 years, 1885-1897

Second period of 22 years, 1898-1921 and 1922-1906, 1912

Time		Mean		Standard		Coefficient	
		I	II	I	II	I	II
January	(i)	104	104	29.1	2.4	28.11	24.4
	(ii)	104	107	34.27	27.2	23.42	27.18
February	(i)	103	104	41	23.66	30.0	23.0
	(ii)	99	104	27.8	22.9	25.6	22.19
March	(i)	101	10	27.04	0.7	1.8	30.96
	(ii)	104	100	4.0	24.2	30.8	1.16
April	(i)	102	111	3.70	28.67	30.8	1.1
	(ii)	100	111	4	41	3.44	28.6
May	(i)	96	100	44.76	29.11	43.0	26.42
	(ii)	91	100	18.40	36.49	30.37	24.91
June	(i)	87	104	17.67	24.07	20.2	22.1
	(ii)	87	90	17.32	10.24	19.98	16.44
July	(i)	84	95	14.82	18.2	16.48	19.84
	(ii)	84	91	14.40	22.3	15.90	21.78
August	(i)	89	88	26.76	26.67	34.40	22.89
	(ii)	91	88	14.86	19.80	15.81	22.46
September	(i)	94	89	18.72	21.66	19.82	21.48
	(ii)	93	92	17.45	18.98	18.46	20.53
October	(i)	101	94	22.34	21.48	22.12	22.71
	(ii)	107	100	26.51	24.11	24.67	23.22
November	(i)	107	98	28.88	21.40	26.88	21.73
	(ii)	107	101	31.59	22.38	29.44	22.19
December	(i)	106	99	32.58	19.50	30.83	19.63
	(ii)	105	99	30.49	27.97	29.13	21.12

## STATEMENT 5.

*Yearly variation in the retail price of mace at Lahore and standard  
of the same*

(Price measured as percentage of actual price in 1900-1901  
average of previous 24 fortnightly (Gazette) retail prices)

Joint period of 35 years, 1885-1921, excluding 1900-1901

Time.				Mean Price	Standard Deviation	Percent Variation
January			(i)	104	96.80	92.9
			(ii)	101	96.88	94.8
February	..	..	(i)	104	97.41	93.7
			(ii)	102	21.81	21.4
March	..	..	(i)	107	97.41	91.51
			(ii)	107	97.67	91.94
April	.	..	(i)	107	97.69	91.47
			(ii)	107	22.66	21.40
May	..	..	(i)	104	97.75	90.5
			(ii)	100	24.95	21.84
June	..	..	(i)	98	22.70	21.30
			(ii)	94	17.64	18.71
July	..	..	(i)	91	18.24	20.14
			(ii)	88	19.82	22.42
August	..	..	(i)	88	20.34	24.09
			(ii)	90	28.41	20.46
September	..	..	(i)	91	20.82	22.95
			(ii)	99	18.44	19.77
October	..	..	(i)	97	22.02	22.71
			(ii)	103	24.77	24.15
November	..	..	(i)	102	24.83	24.39
			(ii)	103	26.37	25.54
December	..	..	(i)	102	25.37	24.92
			(ii)	101	25.07	24.75

## STATEMENT G.

*Yearly variation in the retail price of gram at Lahore and steadiness of the same.*

(Price measured as percentage of the actual price in seers per rupee to average of the previous 21 fortnightly Gazette retail prices.)

First period of 21 years, 1871-1897.

Second period of 21 years, 1898-1921.

Time.			Mean price.		Standard deviation.		Coefficient of variation.	
			I	II	I	II	I	II
January .. ..	(i)		98	95	19.26	17.06	19.65	17.96
	(ii)		99	95	18.69	15.29	18.88	16.09
February .. ..	(i)		98	95	19.29	16.54	19.68	17.41
	(ii)		100	97	20.01	14.87	20.01	15.33
March .. ..	(i)		101	99	17.59	12.81	17.42	12.94
	(ii)		103	102	17.83	15.47	17.34	15.62
April .. ..	(i)		103	107	19.15	24.74	15.68	23.12
	(ii)		103	109	19.07	25.81	15.90	23.68
May .. ..	(i)		103	107	18.90	24.19	17.36	22.89
	(ii)		101	104	16.72	22.81	16.55	22.80
June .. ..	(i)		102	104	15.92	23.83	15.90	22.91
	(ii)		101	105	14.91	24.61	14.76	23.44
July .. ..	(i)		100	103	17.02	23.02	17.02	22.35
	(ii)		97	102	17.77	21.27	18.32	20.85
August .. ..	(i)		94	99	18.24	18.95	19.40	19.14
	(ii)		95	99	19.34	19.15	20.36	19.32
September .. ..	(i)		94	98	20.12	20.47	21.40	20.89
	(ii)		96	98	22.42	19.54	23.35	19.91
October .. ..	(i)		97	98	22.53	20.00	23.23	21.92
	(ii)		90	90	21.33	18.10	22.20	18.85
November .. ..	(i)		96	90	21.77	18.82	22.68	19.00
	(ii)		98	95	19.68	16.99	20.08	17.88
December .. ..	(i)		99	94	21.01	15.85	21.22	16.86
	(ii)		99	93	20.52	16.29	20.73	17.52

## STATEMENT 7.

*Yearly variation in the retail price of gram at Lahore and steadiness of the same.*

(Price measured as percentage of the actual price in seers per rupee to average of the previous 24 fortnightly Gazette retail prices.)

Joint period of 48 years, 1874—1921.

Time.				Mean prices.	Standard deviations.	Coefficients of variation.
January	..	..	(i)	96	18.14	18.90
			(ii)	97	17.19	17.72
February	..	..	(i)	97	18.06	18.62
			(ii)	99	17.71	17.89
March	..	..	(i)	100	15.15	15.45
			(ii)	103	16.71	16.22
April	..	..	(i)	105	20.99	19.32
			(ii)	106	21.73	20.50
May	..	..	(i)	105	21.60	20.57
			(ii)	103	20.66	20.06
June	..	..	(i)	103	20.29	19.70
			(ii)	103	20.41	19.82
July	..	..	(i)	101	20.27	20.07
			(ii)	99	19.75	19.95
August	..	..	(i)	97	18.69	19.27
			(ii)	97	19.38	19.98
September	..	..	(i)	96	20.40	21.25
			(ii)	97	21.04	21.69
October	..	..	(i)	97	21.60	22.27
			(ii)	96	19.79	20.61
November	..	..	(i)	96	20.35	21.20
			(ii)	97	18.45	19.02
December	..	..	(i)	96	18.75	19.53
			(ii)	96	18.74	19.52

## STATEMENT 8.

*Yearly variation in the retail price of gur at Lahore and steadiness of the same.*

(Price measured as the percentage of the actual price to the annual average of the 24 fortnightly Gazette retail prices.)

First period of 13 years, 1855—1897.

Second period of 24 years, 1898—1921.

Time.			Mean Price.		Standard deviation.		Coefficient of variation.	
			I	II	I	II	I	II
January	..	(i)	106	109	10.98	12.98	10.36	11.96
		(ii)	108	108	12.06	11.96	11.65	10.76
February	..	(i)	109	108	9.74	9.17	8.91	8.49
		(ii)	109	108	8.97	8.93	7.95	7.99
March	..	(i)	108	110	6.92	8.48	6.44	7.43
		(ii)	106	106	5.12	8.75	4.83	8.16
April	..	(i)	105	107	7.26	8.14	7.00	7.91
		(ii)	100	105	9.80	7.99	9.80	7.91
May	..	(i)	98	102	6.31	8.57	6.44	8.32
		(ii)	96	100	6.96	6.92	6.91	6.99
June	..	(i)	99	100	8.75	6.93	8.84	6.93
		(ii)	100	100	5.28	5.47	5.28	5.47
July	..	(i)	97	98	6.11	5.12	6.30	5.53
		(ii)	97	98	5.16	7.08	5.63	7.22
August	..	(i)	97	95	1.93	7.98	5.08	8.98
		(ii)	95	95	7.84	7.16	8.25	7.85
September	..	(i)	93	92	8.23	8.28	8.96	9.00
		(ii)	92	90	9.56	7.92	10.39	8.80
October	..	(i)	93	91	9.43	9.74	10.14	10.97
		(ii)	91	90	8.33	10.22	8.86	11.36
November	..	(i)	94	88	10.33	12.46	10.99	14.16
		(ii)	94	95	8.55	12.36	9.10	12.95
December	..	(i)	105	104	12.47	14.47	11.88	13.91
		(ii)	105	105	11.76	13.85	11.20	13.19

## STATEMENT 9.

*Yearly variation in the retail price of gur at Lahore and steadiness of the same.*

(Price measured as the percentage of the actual price to the annual average of the 24 fortnightly Gazette retail prices.)

Joint period of 37 years, 1885—1921.

Time.				Mean prices.	Standard deviations.	Coefficient of variation.
January	..	..	(i)	108	11.78	10.91
			(ii)	108	11.96	11.07
February	..	..	(i)	108	9.38	8.69
			(ii)	108	8.55	7.92
March	..	..	(i)	109	7.79	7.15
			(ii)	107	7.71	7.21
April	..	..	(i)	105	8.01	7.66
			(ii)	103	9.18	8.91
May	..	..	(i)	101	8.32	8.21
			(ii)	99	6.90	6.97
June	..	..	(i)	100	7.11	7.11
			(ii)	100	5.40	5.40
July	..	..	(i)	98	5.75	5.87
			(ii)	97	6.59	6.79
August	..	..	(i)	96	6.87	7.23
			(ii)	95	7.59	7.99
September	..	..	(i)	93	8.32	8.95
			(ii)	91	8.60	9.15
October	..	..	(i)	91	9.82	10.79
			(ii)	91	9.96	10.96
November	..	..	(i)	90	12.15	13.50
			(ii)	95	11.13	11.72
December	..	..	(i)	104	13.81	13.28
			(ii)	105	13.15	12.62

# STATEMENT 10.

## Periodicity of retail wheat at Lahore.

*Statement showing the amplitudes and phases of the first harmonics.*

First group of 24 years, 1875—1897.

Second group of 23 years, 1898-1921, excluding 1912.

Main Period.				AMPLITUDE.		PHASE.	
				1st Group.	2nd Group.	1st Group.	2nd Group.
						Degs. Mins.	Degs. Mins.
2 Fortnights .. .. .	..	..	..	21	23	270 00	270 00
3 .. .. .	..	..	..	33	35	210 57	130 22
4 .. .. .	..	..	..	44	24	47 17	65 54
5 .. .. .	..	..	..	36	24	183 11	265 36
6 .. .. .	..	..	..	83	33	147 31	160 01
7 .. .. .	..	..	..	46	31	2 29	65 06
8 .. .. .	..	..	..	98	56	2 55	25 23
9 .. .. .	..	..	..	192	56	301 47	35 17
10 .. .. .	..	..	..	61	62	182 26	203 11
11 .. .. .	..	..	..	164	131	60 11	20 46
12 .. .. .	..	..	..	176	263	187 69	181 49
13 .. .. .	..	..	..	51	61	1 07	106 04
14 .. .. .	..	..	..	99	70	18 31	182 32
15 .. .. .	..	..	..	121	147	55 00	300 37
16 .. .. .	..	..	..	130	99	60 56	28 27
17 .. .. .	..	..	..	131	149	242 22	153 33
18 .. .. .	..	..	..	92	144	32 10	168 53
19 .. .. .	..	..	..	188	788	61 15	264 49
20 .. .. .	..	..	..	166	161	61 38	189 59
21 .. .. .	..	..	..	79	33	310 52	190 37
22 .. .. .	..	..	..	131	165	182 24	10 59
23 .. .. .	..	..	..	266	155	283 23	1 07
24 .. .. .	..	..	..	542	756	278 14	287 24
25 .. .. .	..	..	..	60	126	211 55	342 26
26 .. .. .	..	..	..	191	141	58 10	357 34
27 .. .. .	..	..	..	328	248	126 00	342 53
28 .. .. .	..	..	..	74	399	240 40	60 17
29 .. .. .	..	..	..	220	156	271 40	99 13
30 .. .. .	..	..	..	136	44	170 15	270 00
31 .. .. .	..	..	..	269	261	352 53	88 54
32 .. .. .	..	..	..	256	163	198 10	161 23
33 .. .. .	..	..	..	425	240	353 58	190 08
34 .. .. .	..	..	..	238	283	122 12	288 07
35 .. .. .	..	..	..	250	130	0 50	45 00
36 .. .. .	..	..	..	459	140	94 12	226 06
37 .. .. .	..	..	..	330	63	149 47	278 16
38 .. .. .	..	..	..	350	249	155 53	235 17
39 .. .. .	..	..	..	347	440	191 79	249 25
40 .. .. .	..	..	..	225	401	192 00	354 08
41 .. .. .	..	..	..	449	240	191 58	33 00
42 .. .. .	..	..	..	530	176	238 00	33 52
43 .. .. .	..	..	..	323	177	274 32	77 50
44 .. .. .	..	..	..	244	138	221 40	155 07
45 .. .. .	..	..	..	583	140	244 13	229 17
46 .. .. .	..	..	..	745	137	286 22	254 45
47 .. .. .	..	..	..	633	237	329 14	249 30
48 .. .. .	..	..	..	301	440	5 26	276 55



## DISCUSSION ON MR. JACOB'S PAPER.

PROFESSOR J. C. COYAJEE congratulated Mr. Jacob on his very valuable and useful contribution, and also the Punjab province on its possession of such able officers who could give such important contributions—important not only to Indian economists but instructive to all students of statistics. As a member of the Fiscal Commission he was interested in the subject and said that although the restrictions on exports might cease he could not believe that bad abnormal fluctuations in the price of wheat would disappear, because there were other factors affecting its price. *e.g.*, the substitution of wheat for other grains with fluctuating prices.

PROFESSOR JEVONS said he desired to thank Mr. Jacob for putting before them the results of his very extensive inquiries into the fluctuations of prices. He would, however, like to see the investigation carried through the 19th century if reliable figures could be obtained. The period from 1872 seemed to him rather short. The results of the second period contradicted those of the first, and it would be extremely useful if the figures of earlier years could be got and examined.

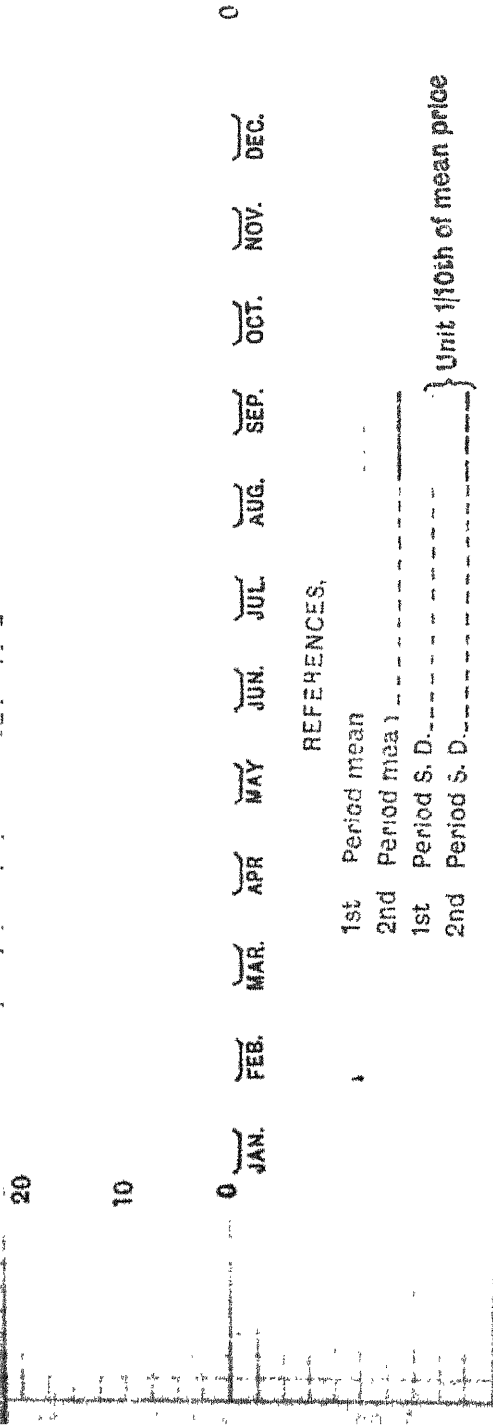
It was put forward by another member as an explanation for the unsteadiness in the price of jowar that the production of this crop was very small and what was even more important the produce was consumed in such quantities that the stocks left over were normally very small.

MR. JACOB, replying, said he desired to thank members for the warm reception they had given to his paper. He said he personally would also like to go into the figures prior to 1874. He was inclined to agree with the suggestion put forth as a cause of the unsteadiness of the price of jowar and maize.

DIAGRAM 1.

# RETAIL WHEAT IN LAHORE. (In seers per rupee)

The price in each fortnight in each year is divided by the average of the previous 24 fortnights (i.e., by the running average), and multiplied by 100, and then these Percentage are summed up for the years included in the period.





## JOWAR PRICES AT LAHORE

DIAGRAM 2

*Diagram showing the variation in the percentage price of Jowar at Lahore, (i.e., percentage of actual price to average of previous 24 fortnightly Gazette retail prices). Prices retail in seers per rupee.*

Note—

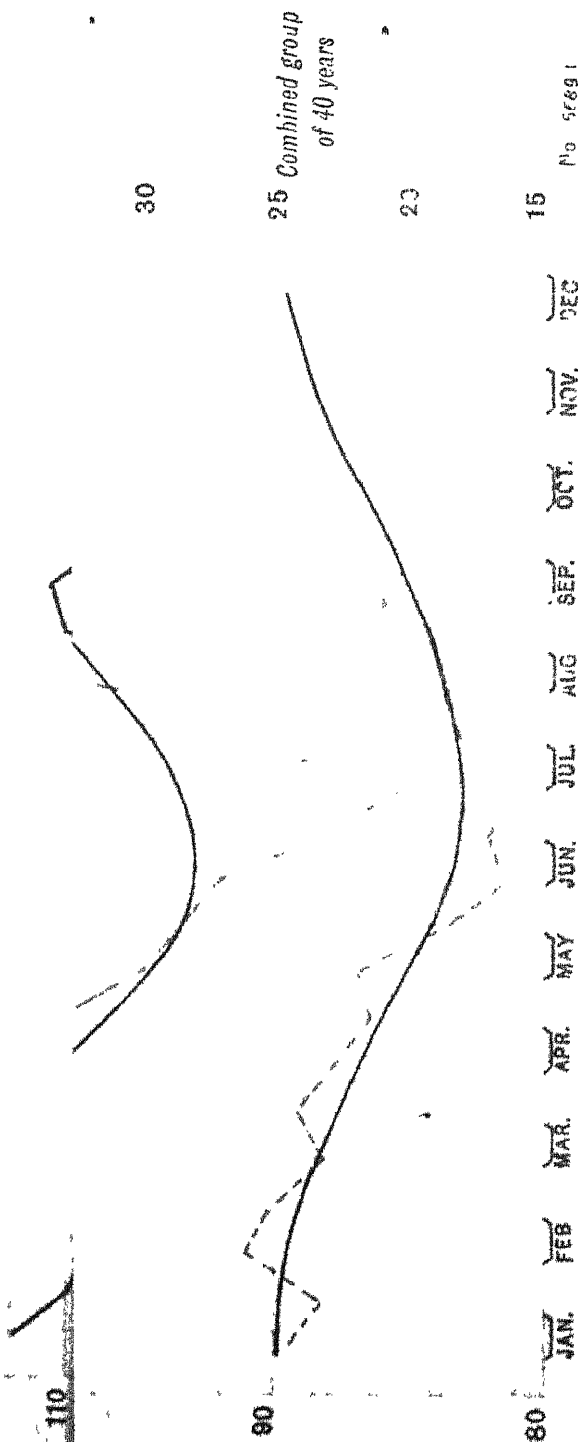
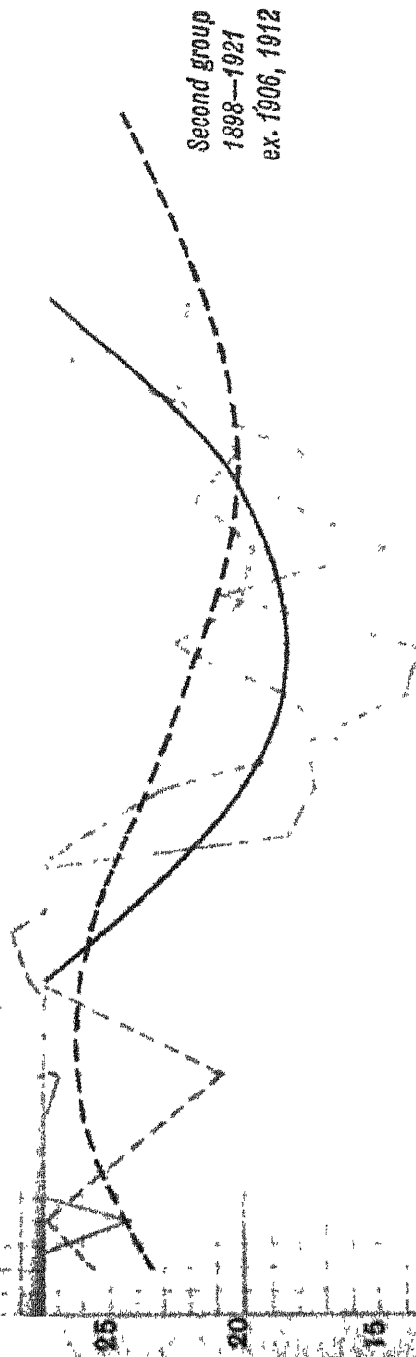




DIAGRAM 4

YEARLY VARIATION IN THE RETAIL PRICE  
OF  
MAIZE AT LAHORE AND STEADINESS OF THE SAME.  
(Price measured as percentage of the actual price in seers per  
Rupee to the average of previous 24 fortnightly Gazette retail prices).

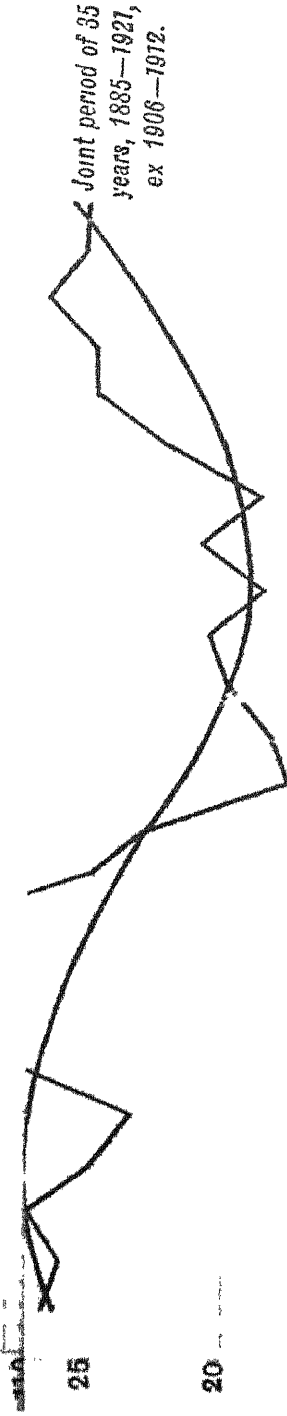


Equation of the first group :  $S = 25.4 + 7.4 \sin (2 \pi t + 74^\circ)$ .  
 " " second " :  $S = 23.0 + 3.1 \sin (2 \pi t + 15^\circ)$ .



DIAGRAM 6

YEARLY VARIATION IN THE RETAIL PRICE  
OF  
MAIZE AT LAHORE AND STEADINESS OF THE SAME.  
(Price measured as percentage of the actual price in seers per  
Rupee to the average of previous 24 fortnightly Gazette retail prices).



(Note.--By 'equation' is meant the equation of the first harmonic.)





# DIAGRAM 8 YEARLY VARIATION IN THE RETAIL PRICE OF GRAM AT LAHORE AND STEADINESS OF THE SAME.

(Price measured as the percentage of the actual price to the average of the previous 24 fortnightly Gazette retail prices).

MEAN PRICES

of 24 years,  
1898--1921

$$Y_t = (2.6) \sin (2 \pi t + 147^\circ) + 18.85 \text{ first group.}$$

$$Y_t = (3.9) \sin (2 \pi t + 283^\circ) + 19.52 \text{ second group.}$$

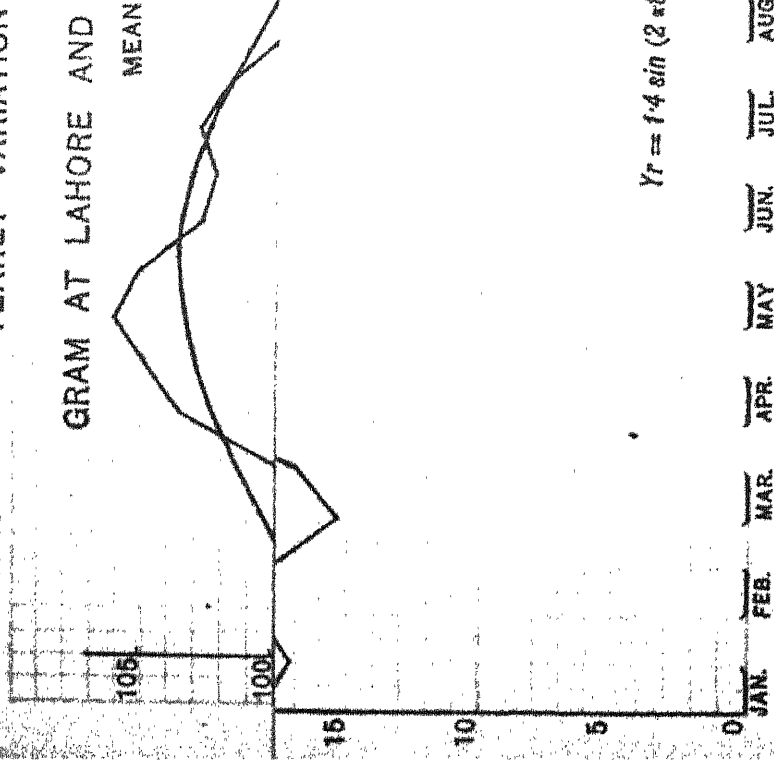
JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.

No. 5689-4.



DIAGRAM 10

YEARLY VARIATION IN THE RETAIL PRICE  
OF  
GRAM AT LAHORE AND STEADINESS OF THE SAME.  
MEAN PRICES



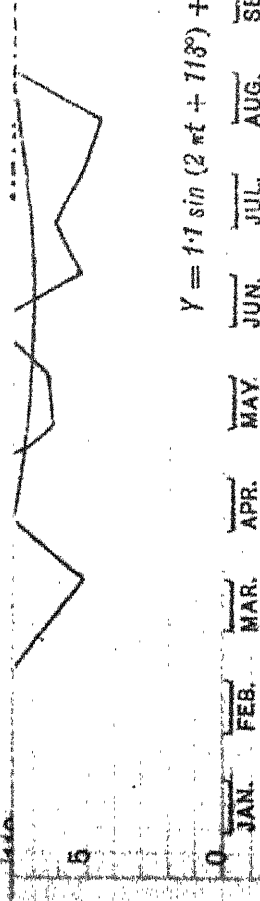
$$Y_T = 1.4 \sin (2 \pi t + 243^\circ) + 19.42.$$

Joint group



DIAGRAM 12

YEARLY VARIATION IN THE RETAIL PRICE  
OF  
GUR AT LAHOPE AND STEADINESS OF THE SAME,  
(Price measured as the percentage of the actual price to the  
annual average of the fortnightly Gazette retail prices).

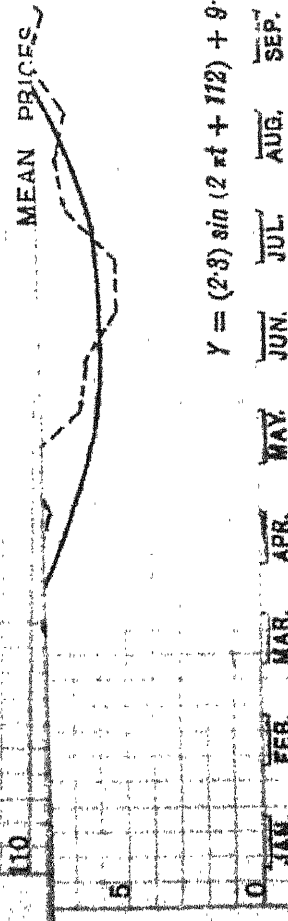


$$Y = 1.1 \sin (2 \pi t + 713^\circ) + 8.37.$$



DIAGRAM 14

YEARLY VARIATION IN THE RETAIL PRICE  
OF  
GUR AT LAHORE AND STEADINESS OF THE SAME.  
(Price measured as the percentage of the actual price to the  
annual average of the fortnightly Gazette retail prices).



$$Y = (2.3) \sin (2 \pi t + 112) + 9.09.$$





DIAGRAM 16 .

YEARLY VARIATION IN THE RETAIL PRICE  
OF  
GUR AT LAHORE AND STEADINESS OF THE SAME.  
(Price measured as the percentage of the actual price to the  
annual average of the 24 fortnightly Gazette retail prices).

110

5

$$Y = (2.9) \sin (2 \pi t + 112) + 8.99.$$

DEC.

NOV.

OCT.

SEP.

AUG.

JUL.

JUN.

MAY

APR.

MAR.

FEB.

JAN.



DIAGRAM 18

PERIODOGRAM CURVE, RETAIL WHEAT AT LAHORE  
CURVE SHOWING THE AMPLITUDES OF THE MAIN PERIODS OF FORTNIGHTS FROM 2-48

(FIRST GROUP OF 24 YEARS, 1874-1897).

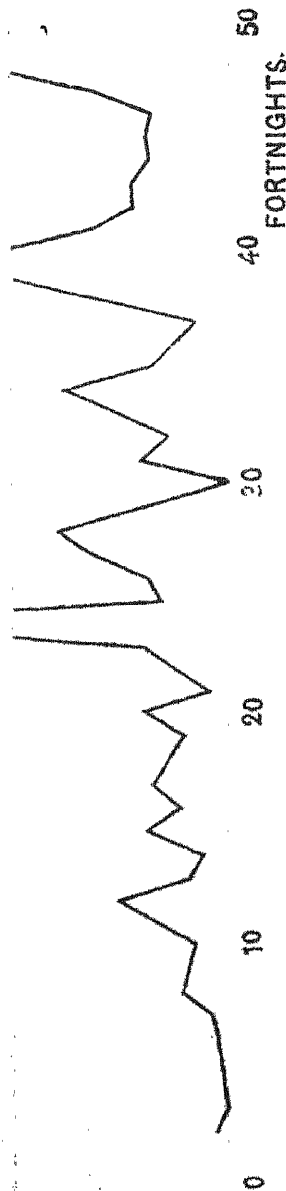




DIAGRAM 20

PROBABLE DIFFERENCES BETWEEN THE GREATEST AND THE LEAST  
VALUES OF K FIGURES CALCULATED FROM N OBSERVATIONS,  
GROUPED FOR CALCULATIONS OF HARMONIC PERIODICITY.

(FIRST GROUP OF 24 YEARS, 1874-1897).

DIFFERENCES. 20

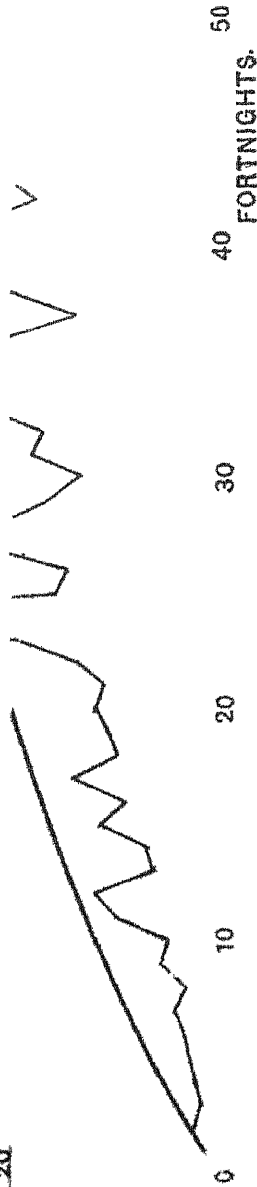
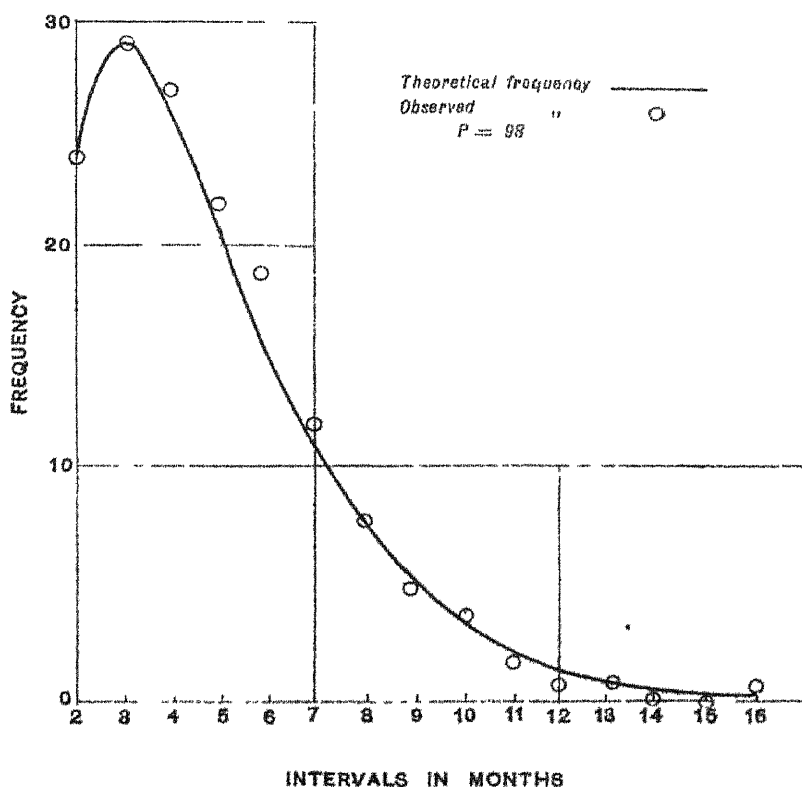




DIAGRAM 22.

COMPARISON OF THE FREQUENCY OF THE NUMBER OF MONTHS BETWEEN THE MAXIMA IN ENGLISH MONTHLY GAZETTE PRICES OF WHEAT FROM JANUARY 1859 TO JULY 1922 (INCLUSIVE) WITH THEORETICAL FREQUENCIES.



Theoretical frequency curve  

$$Fn = 151 (N-1) (0.6)^{N-1} (0.4)$$

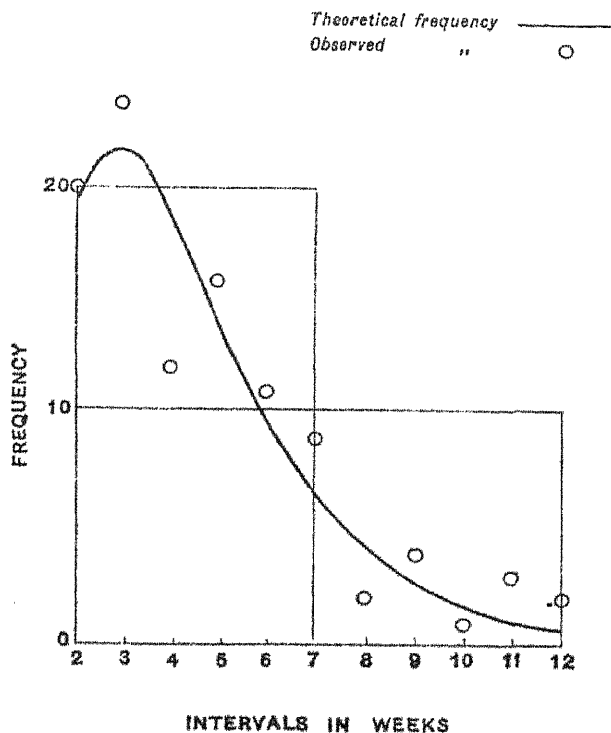
$$= 24.16 (N-1) (0.6)^{N-1}$$





DIAGRAM 23.

COMPARISON OF THE FREQUENCY OF THE NUMBER OF WEEKS INTERVALS BETWEEN THE MAXIMA IN WEEKLY AVERAGE PRICES OF COTTON-AMERICAN MIDDLING FAIR AT LIVERPOOL SINCE 1912 (INTERNATIONAL YEAR BOOK OF AGRICULTURAL STATISTICS 1909 TO 1921-P. 444) WITH THEORETICAL FREQUENCIES.



Theoretical frequency curve.

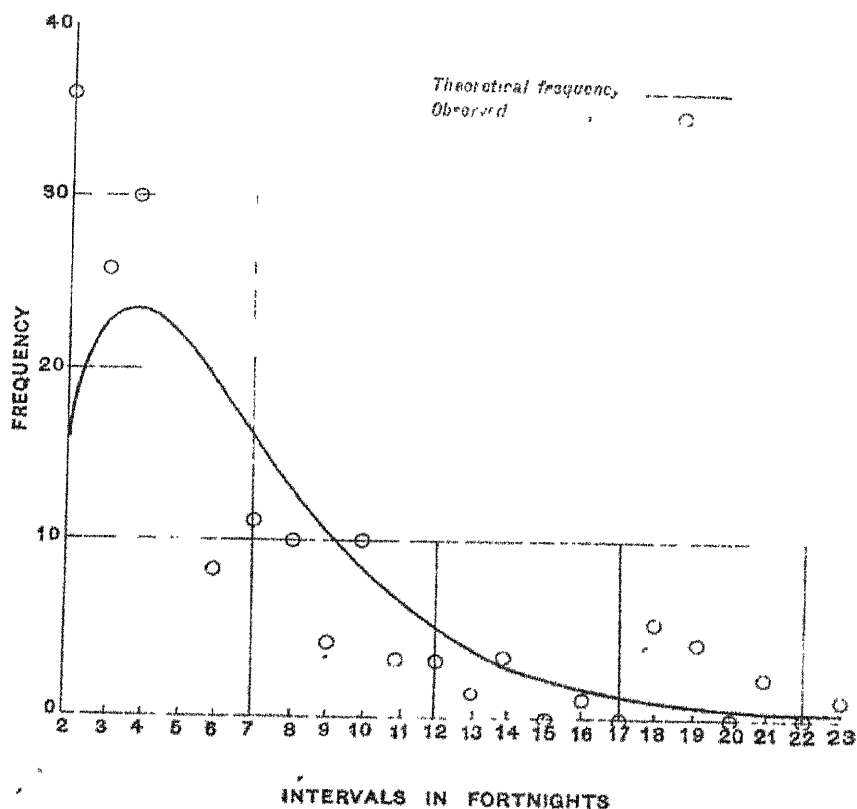
$$F_n = (105-1)(N-1) \left( \frac{.57}{N-2} \right)^2$$

$$= 19.24 (N-1) \left( \frac{.57}{N-2} \right)^2$$



DIAGRAM 24.

COMPARISON OF THE FREQUENCY OF THE NUMBER OF  
FORTNIGHTS INTERVALS BETWEEN THE MAXIMA IN  
FORTNIGHTLY RETAIL WHEAT PRICES FROM 1872  
TO 1922 (PUNJAB GAZETTE) WITH  
THEORETICAL FREQUENCIES.



Theoretical frequency curve  

$$F_n = 10.11 (N-1) (.7)^{N-2}$$



# THE FUTURE OF THE INDIAN BANKING SYSTEM,

By B. RAMA CHANDRA RAU, M.A. (CAL.), L.T. (M.U.), LECTURER  
IN ECONOMICS AND COMMERCE, CALCUTTA UNIVERSITY.

(In the absence of the author, this paper was read by Professor Myles).

Indian banking is in a stage of transition. The banking embroglio and financial cataclysm of the 1913-15 period swept away the weak, unsound and more venturesome of the newly started Indian Joint-Stock Banks\* and ushered in a new era full of bright promise and hope. Close upon its heels came the recent war. It not only improved, re-organised and strengthened our banking system to a great extent but impressed the salient principles of banking theory better than a first-rate professor of economics would have done.

Attempts are being made to remodel our banking structure closely on the lines followed by the builders of the Federal Reserve system of the United States of America. The system of decentralised banking has been discarded in favour of the centralised banking system. A new turn to the banking wheel has been given by the creation of the Imperial Bank of India. The older Joint-Stock banks which emerged unscathed from the banking crisis have re-established their confidence and are expanding their activities into newer fields. A new type of banking institution, *i.e.*, the Industrial Bank has been started and several banks professing industrial financing as their avowed mission have been lately started.†

Year.	Number of Bank Failures.	Paid-up capital (₹) omitted.
1913 (November and December)	.. 12	35,13
1914 .. ..	.. 12	109,00
1915 .. ..	.. 11	4,50

† The Tata Industrial Bank was the pioneer in this direction. Several others were immediately started. To-day we have the following Industrial Banks doing business in British India.

Name of the Bank.	When registered.	Place of business.
Tata Industrial Bank ..	.. 11th December 1917	.. Bombay and its branches.
Industrial Bank of Western India ..	.. 1st October 1919	.. Bombay Presidency.
Surat Industrial Bank ..	.. 30th March 1920	.. ..
Calcutta Industrial Bank ..	.. 20th September 1919	.. Bengal Presidency.
Karnani Industrial Bank ..	.. 26th September 1919	.. ..
Indian Industrial Bank ..	.. 26th November 1919	.. ..
Sthal Industrial Bank ..	.. 23rd December 1919	.. ..
Raikut Industrial Bank ..	.. 2nd January 1920	.. ..
Mongyr Industrial Bank ..	.. 23rd March 1920	.. Bihar.
Simla Banking and Industrial Company ..	.. 1st September 1919	.. Delhi.
Assam Industrial Bank ..	.. 17th May 1919	.. Assam.

Even in Native States, Industrial Banks are started with the special desire of fostering industries.

Name of the Bank.	Date of Registration.	Native State.
Mysore Industrial Bank ..	.. 24th July 1920	.. Mysore.
Gundalpet Industrial Bank ..	.. 24th August 1920	.. ..
Central Travancore Industrial Bank ..	.. 13th September 1919	.. Travancore.
South Malabar Industrial Bank ..	.. 6th April 1920	.. ..

The Co-operative Credit Societies are silently transforming our old village homes and are working a silent revolution amidst the field of desolation and havoc wrought by the sinister influences of selfish-minded capitalism. The Indian people are slowly acquiring the banking habit and in spite of occasional bank failures here and there, the Indian depositor is confiding more trust in the existing banking institutions. Many of the existing banks are increasing their capital in order to provide the needed credit facilities in our money market. This increase of banking capital can be considered as an indication of the stability and financial capacity of the banks.

The banking profession is slowly becoming popular and a more intelligent class of people is coming forward to learn banking business and several of our progressive banks are rightly paying more attention towards the training of apprentices for the science of banking though it can be successfully learnt by intensive culture at the desk, yet the art of banking with its wonderful intricacies can be acquired by practical experience alone. There has been an appreciable increase in the number of banking offices either in the shape of newly started banks or in the form of branches of the existing institutions, but the increase is not commensurate with the size of our country or the population to whose needs they minister. This inadequacy of banking facilities is being keenly felt as a wave of industrial activity is sweeping over our country thanks to the stimulating example of the activities of the Board of Munitions.

\* The total deposits in all the three classes of banking institutions increased from Rs. 92 crores to Rs. 237 crores in 1920. The respective shares in the total deposits in 1920 were, Presidency Banks 37%, Exchange Banks 32%, Indian Joint Stock Banks 31%.

† The "paid up capital" of the following bank increased during the year 1917 and 1920, as the Directors felt it necessary to increase their capital in order to widen the scope of their operations—

Bank of India (Bombay)  
Central Bank of India (Bombay)  
Indian Bank (Madras)

Some of the Eastern Exchange Banks also increased their capital but how much of it is being employed in India cannot be definitely ascertained.

‡ The following are some of the progressive Joint Stock Banks which have increased their branches during recent years:—

<i>Name of the Bank.</i>	<i>Branches (sub branches)</i>	
The Alliance Bank of Simla ..	51	
The Allahabad Bank ..	26	
		The People's Bank of Lahore which failed in 1913, had nearly 80 branches.
The Punjab National Bank ..	25	
The Industrial and Exchange Bank of India (Bombay) ..	40	
The Tata Industrial Bank ..	11	
The Central Bank of India ..	6	
The Bharat National Bank ..	6	
The Poona Bank ..	5	
The Bank of Northern India ..	5	
The Indian Bank ..	4	

The Exchange Banks have about 46 branches and the Imperial Bank of India about 76 branches. These compete with the Commercial Banks to a certain extent.

The position of the money market in India is open door to all immigrant banks as evidenced by the establishment of powerful foreign banks\* who always aim to promote trade relations between the Indian Empire and their own mother country. The indigenous banker of India is shaking himself free of his traditional attitude upon which has been the inevitable consequence of a long absence of competition in the money-lending business.

Several long standing developments that are noticeable in Indian banking circle but much has to be accomplished before we can hope to reach to a domain of banking. Before a perfectly organised banking system can be developed several improvements have to be effected.

The Imperial Bank of India should develop into a full fledged Central Bank. Already a committee banking institution, enjoying full privileges and performing to a certain extent similar services which are rendered by the European Central Banks, it can rise to the full dignity and stature of a Central Bank.

During its short career of a year and a half, it has given promising sign of its abilities and usefulness to the community as a whole. The second expansion of paper currency to five crores of rupees on export bill which has been recommended by Sir H. B. Smith Committee† has been brought about by the action of the Imperial Bank of India during the 1st March when two crores of rupees were issued on export bills brought to the Controller's hands by the Imperial Bank of India‡. Opening its branches in the interior of the country it is expanding its field of usefulness and bringing within easy reach of all sound banking facilities. It promises to help the Alliance Bank of Simla to put its house in order, betokens much. It is a sign that it is having a wide latitude of vision or "an imperial outlook" as Sir David Yule puts it §.

Performing more business with the banks than the outside public thus justifying in reality the term bankers' bank, following her policy of loaning to some extent, realising that it is the handmaid of trade and industry of our country whose imperative duty is to fulfil its ever changing requirements caring less for profits than is the case at present, developing to a certain extent the newly permitted acceptance business and rendering help to all sound banks in their occasional hours of distress, the Imperial Bank of India can obtain real control in the money market.

\*In addition to the old Exchange Banks conducting business in our country, new banks have recently been allowed to open branches in Bombay.

<i>Name of the Exchange Bank.</i>	<i>Date and year</i>	<i>Head Office.</i>
Sumitomo Bank . . . . .	.. 31st December 1919	.. Japan
National Bank of South Africa . . . . .	.. 31st March 1920	.. London.
Imperial Bank of Persia . . . . .	.. 20th September 1920	.. London
Banco Nacional Ultramarino . . . . .	.. 31st December 1920	.. Portugal.
P. O. Banking Corporation . . . . .	.. 31st March 1921	.. London
Reuter's Bank . . . . .	.. " "	.. "

† *Vide* "Report of the Sir Henry Babington Smith Committee".

‡ *Vide* "Report of the Controller of Currency" 1920-1921.

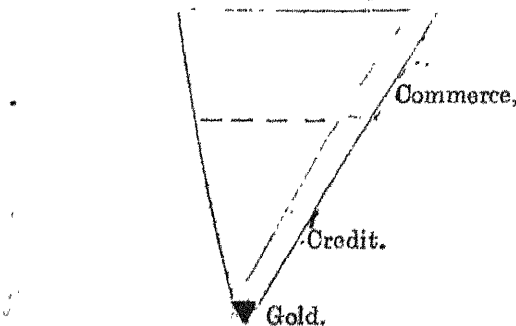
§ *Vide* Sir David Yule's address to the shareholders of the Alliance Bank of Simla at their annual meeting held in August 1922.



and uninfluenced by political currents or the other members of the banking community, it should conduct the whole machinery of banking in the wider interests of society. A centralised system with the Imperial Bank of India acting as the mentor and guardian of the other banks is conducive to the establishment of a sound banking system.

Not only should the Imperial Bank of India pursue business of an unimpeachable character, but the ordinary commercial banks should keep proper cash reserves, rightly utilise their loanable money in liquid assets that can be instantly mobilised with the minimum of risk loss and be cautious in the granting of loans and in the proper selection of reliable and trustworthy clientele. So long as the commercial banks adhere to these golden rules there is no danger as regards their own self-preservation, but they must take care of their clients also and provide elastic currency which expands and decreases with the ebb and flow of business. They should adapt themselves to the changing needs of their customers and never unduly expand their credit by lowering the rate of discount and tempting business men to speculate or embark on wild ventures with easy money. Under the wise direction, legitimate persuasion, helpful intervention and restraining influence of the Central Bank that is arising in their midst, these commercial banks should successfully function to provide this country with sound and automatic currency and such amount of banking credit as is needed for its commercial, industrial and business requirements.

But it is neither the individual bank's conservative management nor the watchful guidance of the Central Bank, that can guarantee the soundness of our banking structure. Our people should realise that "the modern credit system is an inverted cone resting on an apex of gold" as Lord Avebury puts it. Sir R. Giffen rightly observes that "our credit system is to be likened to the long arm of a lever and the least touch on the cash basis displaces a heavy weight of credit on the opposite end." F. W. Bain, who follows Lord Avebury's metaphor says, "the cone is a whipping top, the point alone on which it spins being of gold, the overhanging body consisting of paper credit. Confidence is the whipping which keeps the top revolving" and a rude shock to public confidence involving the withdrawal of gold from the banks, will fell the top to the ground and the beautiful structure will fall like a pack of cards. The late Sir Edward Holden illustrated this fundamental truth by the following diagram.\*



\* *Vide* Melrose "Money and Credit."

The bottom of the apex is the gold basis of the whole superstructure and a removal of a small portion of gold destroys a large portion of credit and it, in its turn, affects a large portion of commerce carried on on credit granted by the banks.

So our people should have confidence in the banks. Depositors, customers and shareholders should not easily lose their heads and reasoning faculties at the first sign of threatened danger and withdraw their support from the banks.\* The banks should be doing sound business and the customers, shareholders and depositors should repose perfect trust in them. They should have mutual confidence and this increases consistently with the growth of general prosperity and social sympathy.

The indigenous bankers should be alive not to their selfish interests alone but be mindful of the interests of our country and display a keen willingness and real desire to the economic regeneration of our country. They should realise that they have outlived their period of usefulness. They should be conscious of their duty to society and instead of acting as parasites gnawing its very vitals, convert themselves into useful and indispensable adjuncts of it.

In addition to the existing banking institutions more should arise and there should be specialising institutions such as pure industrial banks, investment banks, and mortgage banks. These institutions should establish a net-work of their branches all over their country. They should coax the unwilling people into becoming reliable and trustworthy clientele. The secure beneficence of legitimate banking should be taught to the illiterate and suspicious minds. More bankers' Clearing Houses† should be started and the private banking firms should join them as clearing bankers in order to increase their utility. Some simple and carefully laid down legislative measures should be enacted to secure the confidence of the depositors, make the path of the existing banks an easy one and confine the newly arising smaller Joint-Stock Banks to the proper field of legitimate and conservative banking. The existing private bankers should emerge from their seclusion and play an active part in popularising banking business. The Joint-Stock Banks should publish informing balance-sheets and although some of the progressive bankers are publishing a better type of balance-sheet than the one

\*Such a lack of confidence was displayed in the beginning of the late war in 1914. A rush was made on the Indian Post Office Savings Banks and the Joint-Stock Banks also. Even the Paper Currency Office was raided by note-holders for conversion purposes.

† There are about six clearing houses in all in this country.

Calcutta, Karachi, Bombay, Madras, Rangoon and Cawnpore possess clearing houses and the Imperial Bank of India facilitates the "clearing business" in all these places.

Calcutta has 23 banks, Bombay has 32 banks, Madras has 8 banks, Karachi has 11 banks, Rangoon has 10 banks, Cawnpore has 9 banks, and to facilitate their business there is a Clearing House at all these places. These publish the amount of cheques "cleared" during the course of their business operations. There is no reason why clearing houses should not be started at the following centres—Amritsar, Delhi, Lahore, Lyallpur, Lucknow, Rawalpindi and Allahabad. Numerous banks work at these places and the Imperial Bank of India has its branch operating in these centres also. It can easily take the lead and start C. H. organisation.

Amritsar has 9 banks, Delhi 11 banks, Lahore 13 banks, Lyallpur 9 banks, Rawalpindi 7 banks, Allahabad 7 banks, and Lucknow 8 banks.

required by the Indian Joint-Stock Companies Act of 1913\* still much remains to be done in this direction to win the confidence of the public.†

It is a matter of some satisfaction to learn that the Indian Government is attempting to legislate on this matter, thus displaying its willingness to secure the interests of the depositors and accelerate the progress of the banking habit in our country. The pernicious tendency on the part of our Commercial Banks to encroach on the legitimate field of the Exchange Banks and their tendency to transact "mixed" banking business in their mistaken notion that such an action would bring about the economic salvation of our country are fraught with mischievous consequences and grave peril to their own existence and should be given up at the earliest moment. Again the present shyness on the part of some of the soundest banking institutions to amalgamate with each other has to be overcome. These are some of the important measures that have to be achieved before we can realise the full benefits of a vitalising banking system in our country.

Some of these measures have been discussed in detail in the last chapter of my book "Present Day Banking in India" published by the University of Calcutta. Attention will be paid in the following pages solely to the tendency of transacting "mixed" banking on the part of our commercial banks. Their grabbing desire to perform exchange banking business as well, will also be studied in this article.

*The tendency to perform "mixed" banking business.*

The classical exposition of commercial banking theory as expounded by Gilbart, Bagehot, Conant, Dunbar and Withers, has laid down that the chief business of the "commercial banks" is to finance the short-term needs of business men. The paramount duty of the "commercial" bank is to collect the floating capital of the community into its hands and lend it to *bona fide* business men or invest the money in self-liquidating and rapidly maturing loans or convert it into such other assets as not only to lie within its quick and easy control but may be also converted into standard metallic money with the minimum of risk attendant on such a conversion.

This is all theory proper but practice is rarely kind enough to conform to theory proper and one finds that "commercial banks" are making loans for investment purposes, creating fixed capital, helping speculators who dabble on the Stock Exchange, pursuing industrial financing, granting loans to persons for purely consumptive purposes and directing their control over the trade and industrial enterprises of their countries.‡

\*Form G, III Schedule of the Indian Companies Act of 1913.

† It is a matter of supreme gratification to note that the Government of India in order to protect the interests of the depositors, has at last decided to compel the Indian Joint-Stock Banks to publish a balance-sheet on the lines approved by the Cunliffe Committee.

‡ The granting of discounts and loans on the pledge of Stock Exchange securities as collateral on account of insufficiency of commercial or personal credit is not an investment operation. The banks are here acting as mere pawn-shops for securities. But definite investment in securities, promoting and underwriting operations and capitalisation of companies are the operations of the Investment Banks and not the commercial banks. The banks should not support speculation in the value of doubtful securities with the help of its money. It is better to let capital remain idle than venture out on these investments.

This tendency to "mix" commercial banking with investment business, promoting and syndicating operations is noticeable in the case of the banks of the United States of America and Germany.

As one American banker points out "the American commercial banks have been forced in self-defence to invade the business of the 'Investment banks' and one finds that only one-third of the loans of the American banks belongs to the category of commercial finance and the balance is mainly concerned with investment purposes." Another reason why these American commercial banks have taken to investment business is mainly this. They do not find enough employment for their huge resources. "Neither the call money market in New York nor the rediscounting of country bank paper, nor the availability through the brokerage houses of the promissory paper of a limited number of widely known mercantile and industrial establishments will absorb the excess and recourse is had to the bond market." It is not difficult to find other motives for this kind of investment finance. "The desire to escape taxation, the anxiety to become banker to some corporation or municipality and the desire to secure high profits from promoting, syndicating and underwriting business must have induced them to descend to investment financing."

The case with the German "Grossbanken" or the "credit banks" of Germany as they are generally known is however different. As Dr. Reisser says the "Grossbanken" were forced to take up all these ultra commercial operations\* in order to meet "the real demand of German economic development." The German Banks do not aim solely at profit but consider the development of their industries as an important duty incumbent on them. One German Bank director while giving evidence before the American National Monetary Commission says that the "one difference between the Banks of England and Germany is that, in England, the primary purpose of the banks seems to be to secure large earnings for their shareholders. In Germany our banks are largely responsible for the development of the Empire, having fostered and built up its industries."

Another cardinal reason why the "credit" Banks of Germany were forced to conduct this "mixed" banking business was the absence of "financial agencies" and as there was no strict division of labour among the existing agencies the banks were forced as Dr. Reisser says "to occupy in the national economy the place held by the maid-of-all-work in the private household" and to take upon themselves all the tasks which in England are apportioned as a rule among numerous financial agencies other than the Joint-Stock Banks.

These were the reasons that forced the German Banks to attempt "adventuresome" banking as English critics put it. It might be wrong on their part to pursue their audacious policy of "peaceful penetration"

\* The German Grossbanken perform the following banking operations (1) attracting deposits, (2) giving loans, (3) discounting bills, (4) capitalising industries, (5) floating new industrial companies, (6) regulating the value of the shares by selling and buying, (7) buying and selling securities largely on their own account. All banks are members of the Stock Exchange.

into foreign countries. Their assumption that "trade follows the bank as much as the flag" might not be wholly correct. Their policy of acting as the "brains of the industrial army" or the "general staff of German industry" might be questioned. But judging them by practical results and the notable success they have achieved so far, it is well-nigh difficult to condemn them. The remarkable absence of serious collapses\* helped these banks to pursue their own policy of "mixed" banking business unhampered.

It is only in conservative England, that the commercial banks are not so daring and venturesome as to "mix" commercial banking with other lines of business however tempting they may be from the view point of profits. They still stick to their conservative lines of banking operations and refuse to transact such operations as are alien or fundamentally opposed to the true interests of the commercial banks.

But the tendency to perform "mixed" banking is noticeable in the case of our commercial banks also. Several of the "Swadeshi banks" of the Punjab† attempted industrial financing and smitten with an ambition to get-rich-quick they took to investment business as well. But the inevitable has happened and almost all of them were signally punished during the recent banking crisis.

Some of the existing Indian Joint-Stock Banks are trying to follow the path of the German banks. Some of our industrial banks which profess industrial financing as their avowed mission conduct ordinary commercial banking business as well. It is indeed strange to note that the Indian Industrial Commission itself recommends the pursuit of commercial banking by industrial banks that may arise in our country. This may be partly explained as due to their desire to make the industrial banks profit-reaping concerns from the beginning.

The promoters and organisers of several of our banks recently started during the years 1918 to 1920 have the laudable notion of our economic reorganisation. They aspire to utilise these banks as tools for the aggrandisement of their national ambition. But they should bear in mind that this attempt at "mixed" banking business is quite a difficult and risky one. The banks should be well managed and the bank managers should be shrewd, alert and honest. The mere display

\* Even in Germany, instances of bank failures due to their "mixed" banking tendency are not rare. The Leipziger Bank failed in 1900 as it advanced 32,000,000 marks to the Trebetrocknungs-gesellschaft while its paid-up capital was only 48,000,000 marks. Any number of such failures occurred in the bubble era of 1870. (Gründerjahre). The 1901 crisis in Germany was attributed solely to the reckless investing of the German Banks in industrial ventures during the years 1897-1901.

† The failure of the Hindustan Bank, Lahore, was due to advancing large sums to the Punjab Musical Association and to the Punjab Brothers Company (a speculation shop in Karachi).

The failure of the Doaba Bank was due to advancing money to the Anritsar General and Flour Mill Company, Ltd.

The failure of the Lahore Bank was due to its financing a property dealing company and a leather factory.

Some of the other Punjab Banks lent money to the cotton ginning factories which were started out of all proportion to the cotton producing capacity of the province.

of ingenuity in the matter of adopting a national programme similar to that of the German Banks is not sufficient. Wise and capable management should be forthcoming. Besides it is highly erroneous to labour under the misconception that Germany's rapid industrialisation, her economic transition and the development of her foreign trade were mainly due to the helpful attitude of their banks.

Of course the policy of the German Banks interlocking themselves with industrial companies helped the development of their industries but other causes operated as well to make Germany capture many of the world markets within a surprisingly short time. Dr. P. P. Gourvitch\* points out that German export articles were always adapted to foreign tastes, that there was a widespread industrial and commercial education and that German industries received extensive Government aid through different freight rates on Government owned railroads and through rebates and other shipping facilities. Dr. Reiser points out that the German Banks "combined"† to finance large industries which had more or less of a monopolistic character. He instances the Deutsche Bank of Germany which has acquired interests in the smaller banks and thoroughly controlled their policy.

Professor Hauser‡ says that Germany has effected the surprising *tour de force* of securing her financial supremacy in foreign countries while locking up very little of her own capital. He instances the cases where German banks obtained control over Italian business.

Mr. Shaw§ says that the German Banks always made it a systematic policy to obtain information about foreign customers and used their branches to act as information bureau. They always advocated German industry and obtained foreign orders for German manufactures.

Dawson|| says that "there was a development of scientific knowledge on a wide scale and that there was a close application of science to industry." Many of the big banks have a large staff of industrial experts to guide their banking officials in their attitude towards industries.

Again, the allied problems of finance, industry and transportation are treated as different aspects of one and the same problem and sometimes the German banks were undoubtedly used as tools for the aggrandisement of their national ambition.

It is apparently manifest, then, that it is entirely a misguided view to attribute the industrial prosperity of Germany and her ability to compete successfully with British and American industries, mainly to

\* Dr. P. P. Gourvitch "How Germany does business."

† Dr. Reiser "The Great German Banks." The American National Monetary Commission Report.

‡ "The Deutsche Bank of Germany is represented in 116 companies, the National Banks in 90 and so on."

§ Sir R. H. Inglis Palgrave also speaks of this interlocking tendency in his article on German Banks in the Bankers' Magazine, June 1916.

|| Dr. H. Hauser "Germany's Commercial grip on the world." He says that "German finance means German control, German espionage and penetration."

§ Mr. W. A. Shaw "Edinburgh Review," 1918.

|| W. H. Dawson, "Modern Germany."

the financial assistance of the German banks. The German banks have responded well to the call made on them by these various industries but the helpful attitude of the banks is only one among several factors contributing to the prosperity of their industries.

As it has been remarked already, the German banks were well-managed from the beginning. They always insisted on a high paid-up capital of their own and supplemented their resources by attracting long-period deposits. As A. D. MacLaren\* says "the German banks were attracting 'time deposits' and with these they were able to grant longer credits (*long fristiger*)."<sup>†</sup> The German banks knew full well the dangers of locking up their "Commercial deposits" in long-period loans which would be the ultimate result of commercial banks attempting a "mixed" business. They realised that their own capital can be locked up with impunity in more lucrative but less easily realisable assets than short-term commercial paper and as the late Mr. A. Raffolovich and Conant point out, the increase in banking funds in Germany was due not to an increase of their deposit money as in the case of the English banks but due to "their genuine mania for increasing their capital."<sup>‡</sup> As Leopold Joseph says "the German people have full confidence in the administration of banks and in the integrity and responsibilities of the Board of Directors which are mostly composed of capable men. Stringent regulations as regards the responsibility of the Directors are in force and it is only a serious catastrophe that can shake this confidence."<sup>§</sup>

It is highly reprehensible then on the part of the Indian Joint-Stock Banks to imitate the German bank tactics so long as they do not employ the same precautionary measures. It is a well-known fact that the paid-up capital of our commercial banks is very little, and ever since the days of our banking crisis, deposits generally are made for short periods, say 4 or 5 months, and it will be well-nigh criminal folly to grant long-term loans with short-dated deposits. Neither are these banks endowed with the requisite technical knowledge to pursue successfully industrial financing.

It does not necessarily follow, then, that our commercial banks should pursue a "Conservative policy" akin to that of the English and French banks.

Leaving aside the arguments of the late Adolf Wagner § and others who consider the German banking policy as eminently superior to that of the English banks' policy, as wholly irrelevant to our purpose it must be considered whether the "Conservative policy" of the English banks would suit our present national interests. Handicapped as the Indian industrialists are, by the absence of specialising financial agencies such

\*A. D. MacLaren "German Banks and Peaceful Penetration." Quarterly Review, January 1919.

†C. A. Conant "Principles of Money and Banking," Vol. II.

‡L. Joseph "The Evolution of Banking in Germany."

§Lord Incheape on the other hand contends that the English Banking system is superior to that of the German Banking system.

as the "acceptance houses" underwriting and syndicating agencies which abound in any number in the London Money Market a rigidly conservative policy on the part of the Indian banks would severely bar their progress for the lack of adequate capital at the nick of the time.

Secondly, the existing immigrant banks in India do not possess the will nor have they the requisite capital at their command to pursue an ambitious national programme for our economic reorganisation. These banks have not succeeded in breaking the power of the mahajan who to quote Sir Daniel Hamilton's words "is still entrenched safely behind the money-bags, while the victims of his silver bullets lie all around in heaps." These foreign managed banks do not cultivate any business transactions with the small industrialists, business men or agriculturists. As Sir T. Morison says "these are too small to interest the great financial houses." The policy of existing foreign banks favouring European firms as against Indian managed ones is too well-known to need any elaboration here. One should only read the startling disclosures of Mr. Currinbhoy A. Peerbhoy before the Indian Industrial Commission to realise the truth of this charge. These banks never forsake the cardinal principle of "safety" which commercial banks should always possess in their minds. But managed as they are by trained westerners, these cannot realise the true needs of the Indian economic situation and their exclusive dependence on their "shroffs" is indeed too patent and pitiable.

Even in England, this "quiet" policy of the commercial bank has been criticised. Quite recently the tonic of war roused the English public opinion and the English banks were taken to task for their extreme timidity and conservatism. The model of the German Banks was placed before them for imitation but they have unitedly refused to be more "adventuresome" and advocated the specialisation of each function by separate institutions intentionally designed for these purposes. The result of this agitation ended in the formation of the "British Overseas Bank" and the "British Trade Corporation" to "fill the gap between the home banks, Colonial and British Foreign Banks and to grant facilities which the existing banks are not in a position to extend."\*

The doyen of the English Economists Dr. A. Marshall says the English banks should extend the scope of their work. No apology is needed to quote his well-balanced opinion *in extenso*. "While those services to which they devote most of their strength are of unapproached excellence, they make little attempt to rival German or even American banks in the direct furtherance of the large ventures of industry. By limiting their operations to a multitude of relatively small risks, they are enabled to base their advances chiefly on capital deposited with them; and therefore to return extremely high dividends on relatively small paid-up capitals. There are therefore some strong arguments both of equity and of national advantage in favour of the exertion of a slight pressure on them, by legislation or otherwise; tending to increase the ratio which their paid-up capitals bear to their total liabilities. They could then with safety to themselves and their depositors undertake a

---

\* Report of Lord Farrington's Committee on the proposal of a British Trade Bank.



rather greater share than they do now of the larger responsibilities of the country's business abroad, as well as at home, while they would still cover so great a part of their liabilities by fluid assets, as to be certain of their ability to meet promptly further larger demands that might be made on them."<sup>2</sup>

So these British Commercial Banks, "the paragons of conservatism" as one disparaging critic styles them, do not afford the real model that our Indian Joint-Stock Banks should have in their mind.

Our Indian Joint-Stock Banks though they grasp the necessity of a liberal financial assistance to the existing industries and however much they may be animated with a desire to emulate the bold, daring yet fruitful policy of the German banks, must realise their own limitations. The small amount of their paid-up capital, the low proportion of their cash reserves and liquid assets, the short-term nature of their deposits and the absence of masterly financiers endowed with an ambition to display a Napoleonic faculty in its use, should warn the banks as to the dangers involved in extremely speculative courses or prohibit them to stretch their hands towards an absolute control of trade and manufacture.

Again the union of different operations in the hands of a single banking institution in close touch with deposit banking, has its own dangers. The task of keeping assets of a sufficiently liquid character in order to balance the demand obligations of a commercial bank is no slight one, specially when operations partaking of a permanent character, as for instance, industrial financing, are also attempted. Many an authority<sup>3</sup> has written deprecatingly of this tendency and points out that it only paves the way to commercial crisis.

The real remedy then lies in specialisation. Besides banks pursuing strictly commercial business, there should be industrial banks, investment banks, mortgage banks, and such other concerns to specialise in long-term loaning. Numerous financial agencies should be created so that our banks need not necessarily like the German banks be nicknamed "alerlei enterprisen" and muids-of-all-work or a kind of financial universal providers. There should be a strict division of labour among the existing banking institutions and those that may be created in the near future.

While realising that better success can be achieved by specialisation, these Indian banks should not forget that the real strength of the banking system depends on their recognition of their mutual interests. It is not mere emotional sentiment on the part of the existing banks that really counts. The real necessity of the situation seems to lie in a better understanding of banking business.

\* Dr. A. Marshall "Industry and Trade."

† W. R. Scott says "there is an over expansion of credit caused by the exchange of investment securities for chequing accounts and that a forced liquidation of these securities to meet the depositor's call, entails a great loss and an enforced liquidation may bring about a commercial crisis."

H. M. Geiger says "that this practice of commercial banks to invest their funds has been one of the causes of industrial failures in the U. S. A. of several enterprising men who have seen their plans shrivel up and disappear under the sheriff's hammer to satisfy a note that had been 'called.'"

C. A. Conant in his *Modern Banks of Issue* points out that the Bank of Italy, the Bank of Naples, the Bank of Sicily and the Roman Bank locked up in investments all their notes and failed miserably in 1892.

*The tendency to encroach on foreign exchange business of the Exchange Banks.*

Mention has been made in the previous section that the "commercial" banks are encroaching on investment banks, acceptance houses, and underwriting syndicates and are performing functions alien to their specialised business. The tendency to perform exchange business is also to be prominently seen.

The German Banks are as Lord Incheape styles them "Clearing Banks," "Acceptance Houses," "Issuing Houses," "Discount Companies," "Promoting Syndicates," "Exchange Brokers," "Traders and Bankers."

In America, with the development of the acceptance business allowed by the Federal Reserve Act\* and with the opening of foreign branches by the powerful American Banks, the neglect of the fundamental distinction between commercial operations and other banking operations is to be clearly noticed.

Some of the English commercial banks are forced by competition to specialise in exchange business as well. With the advent of powerful foreign and colonial banks,† with their huge resources to be invested in banking operations in the London Money Market, the struggle for profits became very keen and the London Joint City and Midland Bank was the first Joint-Stock Bank to handle foreign exchange business. As it successfully pioneered the way, many other London Joint-Stock Banks began to dabble in foreign exchange as well and today there is a department in some of the English Banks devoted exclusively to this business.

Some of the Indian Joint-Stock Banks, viz., the Tata Industrial Bank, the Union Bank of India, the Industrial and Exchange Bank of Bombay and a few others have taken up this business as well. The old Presidency Bank of Bombay was the first to hanker after this business. Finding her capital to be somewhat great and feeling that legitimate discount business could not successfully absorb her capital, she began to agitate in the seventies of the last century for the repealing of the Bank Act of 1876 in order to permit the Presidency Banks to deal with Exchange business. Wisely or unwisely the Presidency Banks were not granted this coveted privilege‡. This section deals with the advisability or otherwise of our commercial banks handling foreign exchange business.

\* See the Federal Reserve Board Circular No. 19 (November 29 1915). Also Paul Warburg's paper in the American National Monetary Commission Report.

† There were about thirteen first class foreign banks in the London Money Market before the advent of the late War, with about £ 50,000,000 of capital to be invested in banking operations there.

‡ For the reasons that prompted the Secretary of State for India, not to accede to their request, refer to the chapter on "Presidency Banks" in my book "Present Day Banking in India," Calcutta University publication.

Foreign exchange business is a paying one and the Eastern Exchange Banks so far as their dividend is concerned and as the high value of their shares on the Stock Exchange indicates, are thriving concerns and thanks to the Gold Exchange Standard system, the speculative element in their business has been removed and a satisfactory "par of exchange" as it were is established between the silver-using countries and the gold standard ones. When this has been accomplished the Indian Joint-Stock Banks are naturally too eager to share some of the profits arising out of this exchange business.

But the Exchange Banks who have so long monopolised this business, keenly resent any encroachment on their business on the part of the newly established Joint-Stock Banks. They have again succeeded in confining the exchange business of the Imperial Bank of India, solely to its own customers, and there is really no effective competition with the Exchange Banks.

The Exchange Banks might have been actuated with motives of personal gain in their attempts to retain the monopoly of exchange business for themselves. Their contention that "the Presidency Banks which were state-subsidised institutions should not compete with them" might be valid; but this argument will be of no avail to them against the competition of the Indian Joint-Stock Banks. Their threat that they would combine or amalgamate with the big Joint-Stock Banks of the London Money Market, if the Imperial Bank of India were to be allowed full privilege to handle the foreign exchange business, is an empty one, as the Secretary of State for India has already disallowed one such proposal recently.\* Again their argument that they bore the initial risks during the years of fluctuating exchanges from 1872 to 1892 and that they should be treated handsomely for their past services by not interfering with their vested interests, is not of much weight. No perpetual monopoly can however be tolerated on this score.

It is not these trivial arguments that the Exchange Banks have brought forward in the support of their monopoly that should really deter our Joint-Stock Banks from attempting exchange business also. Banking theory lays down sound arguments why there should be a division of labour in the matter of discounting and handling domestic and foreign bills of exchange. While the discounting of domestic bills of exchange is not attendant with grave consequences to the stability of the banks, provided these banks discount first class trade bills arising out of genuine trade transactions, banking theory dwells on the difficulties attending on the operations of foreign exchange and advises that "bills" arising out of export and import business are to be handled by separate institutions known as "the Exchange Banks."

Historically viewed, money changing was the primary and original function of banking. Foreign exchange is nothing "but the buying and selling in any financial centre of the monies of other countries, that is to

\* The National Bank of India wanted to amalgamate with the Lloyd's Bank but the Secretary of State for India vetoed the proposal.

say, the exchanging of foreign monies for the money of that centre.”\* So foreign exchange business is nothing but the exchanging of one country's money (say India's money) with a foreign country's money (say Great Britain) and *vice versa*. Hence it may be argued that our commercial banks are not undertaking any business dangerous to their prosperity or existence.

Another point which tempts the Indian Joint-Stock Banks to hanker after exchange business lies in the fact that there are few “bad debts” in foreign exchange. This feature differentiates it from domestic deposit and discount business. There is absolute freedom from risk as to the loss of principal unless there is a total failure of the parties to the bill. Losses do arise but they are due to fluctuations of exchange rates and mistakes in calculations rather than to the failure of parties to meet their liabilities.

But it must be pointed out that the conversion of foreign money into domestic and *vice versa* is no easy task and an element of speculation always enters in exchange transactions between countries having different metallic currencies. Though lucrative, this foreign exchange business is a most difficult and complicated business because the various influences that operate on the rate of exchange have to be properly understood. It requires an intimate knowledge of the trade relations between the two countries and this can be acquired only after several years' experience. The relative value of the two currencies of the trading countries should be known and any likelihood of trading expansion in the near future should be clearly realised. The business customs of the foreigners and a practical knowledge of their currency system and negotiable instruments used in foreign trade should be thoroughly mastered.

Besides overcoming these difficulties, the banks undertaking this business should avoid speculation in exchange on their own account. They should be careful at keeping their purchases and sales of exchange for various dates of delivery as nearly equal as possible. Occasionally they can make an excess of sales or purchases but broadly speaking an overbought or an oversold situation is not advisable. Their bounden duty is to help the mercantile companies who wish to protect themselves from all fluctuations in exchange by dealings in “futures,” i.e., they may make immediate use of payments as credits in local currency for the purchase of forward exchange. The banks in their turn should protect themselves in their purchases or sales of commercial “long bills” by corresponding transactions in its own or other futures.\*

The exchange business can be conducted safely during times of peace, when the currency situation in the several countries is quite normal and when currency is highly inflated by the States as an emergency measure the situation becomes complex and the fluctuating course of the exchanges baffles all rational conclusions and scientific reasoning.

---

\* Hartley Withers “Money Changing,” p. 132.

The domestic needs or policy of the bank should be borne in mind by the head of the foreign exchange department of the bank and it is difficult to keep both the domestic and foreign operations of the bank, each involving large outlay of capital, in close harmony with each other.

Such are the complexities that are attending on the foreign exchange business. Although there is nothing inherently unsound in the proposal of our commercial banks to undertake exchange business, yet it must be recognised that they are apt to underrate the difficulties of the business and their enthusiasm may land them into deep water. So long as the banks find ample, lucrative and safe employment for their resources, there is no reason why they should particularly insist on the handling of foreign exchange business. For a safe and efficient performance of this business, the foreign exchange department must be in the hands of a trained specialist. Clerks possessing a good knowledge of foreign languages are necessary. Branches in foreign monetary centres are necessary and the incidence of cost of such branches is very high in the beginning. Agents can be employed but they may mismanage and it has been announced recently that the London\* agent of the Alliance Bank of Simla failed to do this business properly and this virtually forced it to open a branch of its own in London. Again the Union Bank of India which was started about three years back with a capital of 10 crores now finds it difficult to transact exchange business and it has been proposed to reduce the capital to 5 crores. The chaotic state of the European exchanges forbids all sane people to meddle with it and so long as the depreciation of the European currencies goes on apace and no attempt is made to stay this drift by international authorities, it is not wise for those not well-versed in monetary matters to have anything to do with the exchange business.

It is only when no other avenue of successful business is open to them, that our commercial banks should handle foreign exchange business. Our premier industry, agriculture, which gives occupation to 72 per cent. of our total population is almost famishing for want of capital. Instead of directing our capital to commercial banks, it behoves us to start industrial banks, agricultural banks, and mortgage banks. A connecting link should be established between the co-operative credit societies and the existing commercial banks. Our capital should be rightly used, for unless capital is rightly used, no further capital can be created.

However, for a long time to come this combination of commercial banking business with investing and promoting kind of business and exchange business will be on the increase. The temptation of bigger profits is always alluring and no legislative measures can be devised to check this ominous financial combination. They must only realise that specialisation of each function will lead to better results.

\* Owing to the failure of Messrs. Boulton Bros. and Co., the Alliance Bank of Simla had to open a branch of its own in London.

## DISCUSSION ON MR. RAMA CHANDRA RAU'S PAPER.

MR. BHATEJA said he regretted the way in which certain facts were presented, and he wondered whether the Association was liable for defamation for any statements made in the paper. He agreed that a special type of banks for promoting industrial enterprise was required. The problem was that of financing the industries. The English banks in India lend money to large enterprises, but they do not lend to the ordinary Indian trader or the small business man. If industries are to be developed, then the gap in our banking system will have to be filled up. In Europe the State filled up the gap by starting discount houses for temporary periods; this necessity was no longer felt there and State aid had therefore been withdrawn. As regards the question of an Industrial Bank taking to exchange business he agreed with the writer that exchange business was most complicated but he did not see any reason why the banks here should not take up exchange business provided due caution was exercised. He could not agree that we should wait until our people get specialized in banking; the millennium may take a long time to be realized.

DR. TANNAN said that unless the Government transferred the work of the Paper Currency Office to the Imperial Bank the latter would not be in a position to render such assistance as the Central Banks in European countries are doing. He pointed out that the Imperial Bank had to pay a high rate of interest to Government for loans, and so they had to charge a higher rate of interest to the trades and industries of the country. This difficulty he thought could be overcome if the Imperial Bank were given greater facilities for drawing on the Paper Currency Reserves. He would also like to see the Imperial Bank affording facilities for the transfer of large amounts of money from the Head Office to its branches and *vice versa* at practically no cost as was the case in Germany. It had to be realised that the banking needs of India were very great, and he thought that Indians could readily be trained if the existing banks gave them facilities. At present liberal facilities were not afforded by the banks, although the Imperial Bank is now forced by Government to take at least 50 % of its new recruits from amongst Indians. He explained the difficulty of opening branches when the number of Indian specialists was few and the European Manager had to be highly paid. There was therefore a great necessity for Indian young men specializing in banking so that they might take up the posts of managing agents with the Imperial and other Banks.

DR. HYDER said he wanted to emphasise the point that we could have industrial banks provided there were capable men outside, not necessarily bankers, who would manage the factories and do other work. If such men were available we could have long term loans and other banking facilities, but it will take a long time in India to get such men, and therefore, in his opinion, industrial banks will have to wait.

4 P. M. GARDEN PARTY. Members of the Association attended an "At Home" at Shahdara given in honour of Dr. Sir Mohammad Iqbal.



THIRD DAY :—THURSDAY, JANUARY 18th, MORNING SESSION.

## RURAL ECONOMICS.

### CO-OPERATIVE FARMS.

BY C. F. STRICKLAND, ESQ., I. C. S., PUNJAB.

For the purpose of the present argument a co-operative farm is defined as land collectively owned or taken in lease by members of a co-operative society for their own cultivation. It is to be distinguished from (1) land owned by co-operators who employ other persons on a wage or a rent to cultivate it for them ; and (2) the employment by a landowner of labourers to whom he pays a share of profit on the year's transactions in addition to the ordinary wage. Under the first head fall the large areas owned and farmed in England, Scotland and Asia by the Co-operative Wholesale Societies of England and Scotland, the cultivators being ordinary employees, who are only indirectly, if at all, benefited by the co-operative movement. These estates are, however, often dignified with the incorrect title of co-operative farms. Under the second head, the mere incident of profit-sharing clearly does not constitute co-operation, nor even approximate to it unless a predominant share in the control is also conceded to all active workers.

The objects of the true co-operative farm are threefold : (1) employment may be secured, in districts in which the supply of unskilled labour exceeds the demand, by a group of men cultivating a tract of land more intensively than a single owner or occupier would be prepared to do, since intensive cultivation calls for more labourers and can bear the additional cost. (2) The middleman or farming contractor may be removed if owners of large estates can be induced to dispense with him and to lease their land to a group of cultivators, the profit of the middleman being divided between the parties, the landlord receiving more and the tenants paying less. (3) A larger out-turn of agricultural produce may be obtained by improved cultivation, and the nation's wealth thereby increased. Except in so far as intensive cultivation provides more occupation and therefore more wages, this last object is appropriate to the ideas rather of organisers than of the cultivators themselves. The country gains through co-operative organisation of individuals whose primary aim is their own security or profit.

This system of farming has won its most notable success in Italy, though widely spread also in Roumania and found in scattered instances in other countries including England. Italian statistics are imperfect, but the number of existing farms in 1920 was estimated at 500, holding perhaps 200,000 acres, in addition to an equal area under semi-co-operative management by the State in a backward province. The movement is promoted alike by the Catholic and the Socialist parties, who favour opposing methods of divided and unitary management. On the former method the land held by the Society is leased to the members in small holdings, which, though not proprietary, may



be continuously occupied by the lessees, and on the death of a member are usually leased again to his heir. The holdings are, however, subject to adjustment in accordance with changes in the size of a member's working family: and since it is not permissible for any member to sublet a field or to engage wage-earning labourers, his holding will be reduced if it exceeds his cultivating capacity, and in the reverse case may be increased if land is available. Some Societies in fact resort to a regular re-allotment every few years. The alternative method, preferred by the Socialists, to many of whom the institution of property is theoretically at least, abominable, is to retain the administration of the land entirely in the hands of the Society on a unitary system: a *latter manager* is appointed who directs the agricultural operations under the general control of the managing committee. The labourers and cultivators receive a regular wage while employed and are also entitled to a share in the annual profits: a part of the wages is frequently withheld until the conclusion of the year as a guarantee against possible loss and against disloyalty. In localities in which agricultural unemployment is recurrent, the members may prefer to prolong their employment and the receipt of even a diminished wage so long as the funds allow, abandoning the hope of a dividend and of the deferred balance on their wage.

These two types, in Italy and elsewhere, represent the *ideal* doctrines of co-operative farming. In practice innumerable *half-way* intermediate between them are accepted in one place or another. An extreme case of divided management will be the Society which either purchases land and re-sells it to members with full rights of ownership itself then ceasing to exist when the transfer has been completed, or which acknowledges a formal or conventional right in its lessee-members to a permanent and hereditary possession. A different class of Society will reserve a portion only of the land to the central management for collective purposes, such as the stabling of live-stock and machinery, the growing of fodder, the storage of seed or of harvested produce. The *Small Holders' Societies* in England adopt this plan, hiring their land by collective lease in preference to purchase from county councils or individual landlords and sub-dividing among their members all but a few acres. Only one purely unitary form of working cultivators was known to exist in England at the time of an inquiry made in 1920. Yet other Societies are found which surrender holdings with greater or less permanence to their members, the latter in return binding themselves to certain agricultural methods, either in the use of expensive machinery which could not be purchased unless its adequate employment were guaranteed, or by participation in a common agreement, e.g., with an authority supplying water for irrigation. Purchase of land by co-operative cultivators in Italy or elsewhere is comparatively rare, since it locks up a larger capital than they can well afford and ties them to an ownership which the taxation of agricultural land (fully as heavy in most European countries as in India) may render unremunerative.

A third main type resembling the Society with unitary management is to be observed in the agricultural guilds now springing up in

England under the influence of the National Guild propaganda, the objects of which are:—(1) permanent employment of workers; and (2) work for the service of the community, not for personal profit: *i.e.*, the worker receives a constant and reasonable wage, even if there be insufficient work to do, and the profits of the undertaking, if any, are devoted, firstly to improving the conditions of employment, and secondly, to reducing the price at which the product is supplied to the community. These agricultural guilds appear to resemble co-operative farms under unitary management with a special and fundamental provision as to the disposal of profits.

The several varieties of internal organisation above described are adapted to the different ends which the co-operative farmers in each locality have principally in view. In an Italian province such as the Emilia and in parts of Sicily, where unskilled labour for both agricultural and industrial purposes is perennially in excess, the unitary management of the farm is effective both in distributing over the maximum number of persons the available work and in disciplining the labour mass for redemption and improvement of deteriorated land and for that high cultivation which alone can meet the original cost. Though the individual cannot be described as contented, he recognises that he is more fortunate as a labourer under his farming society than if he were a mere unit in a drifting crowd of surplus men. In other provinces where unemployment is not a chronic trouble landless men or tenant cultivators aspire rather to establish themselves as occupiers or owners of their own farms, and even the Socialists are forced to make large concessions to this preference for independence. The co-operators who obtain a lease for a term of years, on a rent possibly enhanced to cover the anxiety of the landlord as to the financial stability of the Society, are satisfied with possession of their home and land, and hope so to extend the system of collective leases to the exclusion of contractors and middlemen, that they may feel themselves free from these competitors and therefore secure in their tenure. The object of excluding the middleman is equally well attained by all types of farming society; though it should not be supposed that all middlemen are bad farmers, especially on soils and crops requiring the application of capital, yet many are deficient in agricultural knowledge or experience and all tend to be indifferent to those minor demands of the labourer or tenants, *e.g.*, in connection with housing, which make so overwhelming a difference to his happiness. When, however, we compare the varieties of farm in respect of their third aim, the increase of agricultural outturn, the superiority whether from the point of value or of quantity is entirely on the side of undivided management. The unitary Society employing a number of men under a single administrator naturally selects an expert for the post whereas a group of semi-independent tenants appoints one of its own members to be President and Manager and depends for skilled advice on the services of a travelling agriculturist who visits the estate from time to time on behalf of the Government or of the Union to which their Society belongs. A comparison of the outturn on the co-operative farm of Belpiano under the administration of an individual landlord

and under a co-operative society will illustrate the advantages of the unitary system. Area of the farm 290 acres :

<i>Produce in a year under private management.</i>		<i>Produce in a year under co-operative management.</i>	
Wheat	571 mds.	Wheat	1,728 mds.
Maize	430 ..	Maize	1,588 ..
Oats	10 ..	Oats	90 ..
Grapes	70 ..	Grapes	191 ..
Tomatoes		Tomatoes	1,110 ..
Seeds	3 ..	Seed	13½ ..
Silkworm cocoons	2½ ..	Silkworm Cocoons	9 ..
Working livestock	23 head.	Working livestock	48 head.

The increase in the number of working individuals is not recorded : the outturn per individual cannot therefore be compared. Nor again are similar figures for comparison forthcoming from a co-operative farm with divided holdings, for in such a case the collection of statistics is not easy, and since the land thus leased by co-operators was frequently, though not always, already in divided holdings under the middleman, the system of cultivation has not undergone a radical transformation at the hands of co-operators. Even, however, when allowance is made for a possible partiality in the institution which collected the above data (which are based on actual farm records), the agricultural improvement is sufficiently obvious to require no argument.

Rural unemployment being rare in the Punjab, the severity of unitary management will doubtless not prove acceptable to co-operators in this province who may wish to embark on a collective ownership or hiring of land. There may, however, be varieties of crops or circumstances which enforce such a joint tenure. It may be convenient in Bengal or in other crowded areas with which the writer is not familiar to maintain united management both as a safe guard against unemployment and on grounds of agricultural advantage. A tea garden for instance would be best operated in this way, and on the occasion of the next Assam strike it is suggested that such an experiment be tried. It is also logically arguable that the agricultural area which it has been proposed to grant in a Punjab colony to tenants who should be bound to grow a certain proportion of sugarcane for a central cane-crushing and sugar-making factory may be better granted to a co-operative association handling the area as a whole, paying a regular subsistence allowance to its working members and distributing at the end of the year a further rebate on their wages and a limited dividend on capital. It does not appear probable that without some form of compulsion the Punjabi peasant will abandon his desire for a separate holding of his own, and in the absence of general unemployment such compulsion can only be applied by means of conditions attached to a Government grant of land. The unpopularity of a grant on these terms would only be faced by Government in furtherance of a special scheme, such as that of a sugar factory, in which economic policy might recommend a central control.

It remains to consider whether co-operative farms of the divided type can usefully be established in the Punjab or other Indian Provinces. Wherever a contractor interposes between the landlord and the individual cultivator, it is clearly desirable to substitute for him a co-operative society of tenants, financed by a credit society or a central co-operative bank, and acting towards the landlord in all respects as does the present middleman. The society should in fact *be* the middleman and should exact at least as high a rent from its members as does the independent contractor; the annual profits, after a sufficient sum has been carried to reserve, can be distributed as a rebate on the rents. *Prima facie* the landowner does not appear to gain from the proceeding: if that is the case, he is at least no loser: and if he is irrationally hostile, it should be practicable to bring him to reason by a tenants' boycott. On the other hand, it is justifiable to hope that tenants working in a society will be induced by their co-operative advisers to improve their methods of cultivation: the landlord will then benefit by the enhancement in the value of his land, by a more profitable share of the crop if rent is paid in kind, or by a higher cash rent when the lease falls due for renewal. Conditions suitable for such societies exist in numerous villages held by yeoman grantees and capitalist purchasers in the Punjab colonies, and also in a few old proprietary villages in which the tenants are not long-established residents; such proprietary estates abound in other parts of India and when leased to middlemen offer a proper field for co-operative farming, but it will be more difficult to bring together for a collective lease those tenants who, though not enjoying rights of occupancy, have nevertheless been cultivating the same lands without disturbance for several generations: they will prefer the friendly personal relation between landlord and tenant which there is no advantage in upsetting. The enemy of co-operators is the middleman, not the landlord. In the Punjab colonies the lessee of a village or a large holding is often the village money-lender, who in his double capacity is able so to confuse his various business transactions with the tenants, and so to dominate their daily economic and social life, as to plunge them in inextricable debt. Co-operative credit cannot save them, since when pressed by a creditor they are ready to migrate; while co-operative credit requires a certain minimum of stability; such stability can best be created, and the hope of escaping from indebtedness best excited, by uniting the tenants in a lessee society.

(It should be remembered that the average Indian peasant does not conceive that freedom from excessive debt is possible: he will only begin to make efforts when he has learned to hope). A very real danger in lessee societies, as experienced in co-partner building societies formed by tenants, is the tendency to demand too low a rent: just as consumers' societies on the Rochdale system charge the full market price for articles sold, and pay back the surplus to members as an annual rebate on purchases, thereby building up a reserve fund and guarding themselves against the eventuality of losses which in any year may leave no rebate to repay, so the lessee society must recover a full rent from its members, and after carrying a part to reserve distribute the remainder as a rebate

on rents or other economic dealings; the fund to be distributed will be formed by the margin between the rent paid to the landlord and the rents charged to the tenant members (a non-member tenant will receive no rebate), and also from transactions of collective purchase of seeds, agricultural implements, or domestic requirements, and of collective sale of produce. Such undertakings of purchases and sale will more readily be faced by tenants each of whom is liable— with unlimited liability—to pay to the landlord the full rent due from the society, and who will all in consequence realize the importance of helping each other to earn sufficient profits for each to pay his own rent to the society. Similarly the purchase and preservation of improved varieties of seed and implements and the adoption of more scientific methods, will appeal to men who have an economic and urgent interest in each other's proceedings. One reason for the prevailing retrograde and careless cultivation in the Punjab and doubtless elsewhere is that the cultivator feels responsible to no one but himself; if he prefers leisure and mental-indolence to thought and consequent profit, he believes himself to be the only sufferer. In this he is entirely mistaken, as any English landlord would make him realize, but he can only be shaken out of his mistake by combining his liability and that of all his fellows in a collective responsibility. The burden of a joint rent will renew that stimulus to activity which was formerly provided by the joint liability of the Punjab village for its land revenue, but which has been removed by the progressive reduction in the real weight of the assessment. The big landlord in villages suitable for co-operative leases is beyond the reach of such an appeal to the pocket, since the revenue, just as in Bengal villages under permanent assessment, means economically little to a big landlord; the tenant on the other hand may be more accessible through his rent.

It will be open to a co-operative farming society to pay rent to the landlord in cash or in kind as local custom or convenience may dictate. An absentee landlord will normally prefer cash. The society likewise can recover rent in cash or kind from its members. The advantage of a cash rent is that the lessee society and the cultivating members know that all additional profit earned by their intelligence or industry accrues to them only; but since the payment of a cash rent in years of unexpectedly poor harvests is uncertain, and the landlord will often be harsh to an impersonal lessee society, it may be wise to stipulate for payment to the landlord in kind until a reserve fund has been accumulated, and thereafter in cash. A rent in kind, taken by the society from its members, offers the advantage of uniting the members and the society in interest, a share of each man's visible crop being the property of all members, and also of inciting them to collective sale of their own surplus produce together with the share which the society has to sell on its own behalf. On the other hand collective sale being risky and tending to speculation will perhaps be deferred until after the accumulation of a reserve fund. The most prudent course for an infant society will be to pay kind to the landlord and receive kind from the tenants, converting the landlord's rent to cash when its funds can meet the strain of two successive bad harvests.

No co-operative farms have yet come into active being in the Punjab, and it is difficult without first-hand and detailed information from a co-operator, to estimate the worth of the experiments mentioned in the official reports of co-operation in other provinces. The zamindari societies of Bengal are of a capitalistic nature and are formed by non-cultivators: two at least of those existing in Madras appear to be rather ventures in contracting than associations of workers. A farming society of genuine cultivators belonging to Gujrat District in the Punjab has been registered and intends to hire land for cultivation by its members, but has not yet secured a lease on acceptable terms. Another project to finance the tenants of a large estate in purchasing their holdings has been discussed, and if this scheme matures it may prove convenient to vest the ownership in one or more land-purchase societies which can offer a more tangible security to the financing body than that of numerous and unpunctual peasants. The societies would no doubt be able to extend the term and lighten the instalments by which disunited individuals would otherwise be expected to contribute their purchase money. An exceptional opportunity for a farming experiment has been missed, in the writer's opinion, in connection with a grant of 100 rectangles (2,500 acres) of "bara" or low-grade land in Montgomery colony made by the Punjab Government in the past year to co-operators of some villages in Gurdaspur, Hoshiarpur and Lahore Districts, the former lands of which have been damaged by natural forces. The grants have been made to the Co-operative Credit Societies of the old villages which will nominate the cultivators, and though there is no reason to doubt that the grantees will make satisfactory arrangements for the cultivation so far as the conditions imposed by Government are concerned, yet the owning societies will be absentee landlords, and either the frequent rotation of tenants from the old home will diminish the vigour of the cultivation, or the nominees if allowed to remain continuously in occupation will acquire an interest and a moral claim divergent from that of their remote society-landlords. The land should have been given to *new* societies, to be formed in the colony villages by those members whom the old societies nominated for settlement, and the settlers should have been required to surrender their minute shares in the old homeland when proprietary rights in the colony were conferred. The societies would then have been landlords, but their component members would have been the tenants only, and a sufficient unity of interest would have been established to insure that attentive and progressive cultivation without which the low-grade lands in question will not be profitable. Future grants, whether of low-grade land in Montgomery, or of ordinary land in colonies hereafter settled, might be made on these lines.

Three minor objects, desirable in themselves, are attainable in the Punjab through co-operative farms :—

(1) Whether the land be bought or hired, the society will serve as a buffer between the cultivator and the subordinate staff of the revenue and other departments, from whom he is exposed to certain exactions. If the society owns the land, it should be the headman of

the village ; and whether the society is owner or lessee, it should perform the duties of the patwari (village accountant) and draw his pay and lawful fees ; the secretary of the society would be as familiar with the records of the estate as any patwari, and far better acquainted with the true condition of the crops, the facts of cultivation, and the health of the human and animal community. A prudent society will employ a patwari as its Secretary.

(2) The curse of pre-emption will be lifted from those village communities in which a farming society becomes the landlord, since the admission of a new comer to membership will be dependent on the consent of the existing members.

(3) Fragmentation of holdings, and the consequent need for consolidation by repartition, will be reduced to a minimum, since the tenants who compose and control the society, though normally reluctant to disturb the possession of any well-behaved member of their body, will have ultimate power in general meeting to insist on a redistribution. This power will no doubt readily be used in cases of inheritance, and a separation of holdings prevented by necessary exchanges, for it must be remembered that the heir will be dependent on the consent of the general body for his admission to the holding of the predecessor. It will be to the public interest to encourage a similar demand for redistribution if one member believes that the land of another can be more profitably cultivated by himself than by the present tenant ; the successful farmer should have his holding increased, experimentally at first, and permanently if he justifies his claim by a better outturn.

Assistance from Government, other than the advice of the co-operative staff which will in the ordinary course of its duties be promoting the creation and prosperity of the farms, will seldom be required. The help of the Agricultural Department will be forthcoming so far as its limited personnel allows, and unions of co-operative farms will be well advised to engage their own experts at their own cost. The agreement of the revenue staff with regard to the post of headman, and of the revenue and irrigation departments with regard to the duties of the patwari must be won by the success of a few societies experimentally appointed to prove their capacity. A separate outlet for canal water on irrigated lands will also be a valuable privilege. Loans from the State to finance the farming societies, which are freely given by the Italian Government through the National Institute of Co-operative Credit, should be superfluous unless the creation of farms in large numbers and in a short period is contemplated : only the settlement of a new canal colony on co-operative lines, as suggested above, will necessitate a considerable advance of State money ; otherwise the Central Co-operative Banks should be equal to providing the sum needed in excess of that which tenants can contribute by selling their jewellery and their surplus cattle. If the tenants will not make this sacrifice, the Banks may well hesitate to lend to them. A general circular order from Government should invite administrative officers to examine with attention and favour all reasonable offers of a farming co-operative society for leases

of State lands and should confer on such a society the right of preference when its bid is equal to that of a private contractor or landlord. This preference is granted in Italy : in India, however, it will be ineffective unless officers of Government abandon the vicious practice of accepting an extravagant bid and afterwards remitting a part of the sum due in response to the supplications of the incautious or malicious bidder. A middleman who excludes the cultivator from a lease of available lands by offering an excessive rent must be held to his bargain in order to temper his hastiness or restrain his jealousy. His co-operative competitor can beat him on fair ground and will ask for no remission.



## DISCUSSION ON MR. STRICKLAND'S PAPER.

MR. STRICKLAND in introducing his paper pointed out that the object was to increase the agricultural output. In a system of co-operative farming it would be possible to introduce improved methods of cultivation and also to have skilled persons to guide the cultivation of the different crops. These skilled persons would examine the capacity of the land to produce certain crops and could recommend its utilization to the best advantage. This was not possible under the system of individualistic farming, and moreover the individual farmer particularly in India was not in a position to indulge in experiments in new methods of farming. He illustrated the advantages of co-operative farming from the history of Italy. One great advantage was that the State under a system of co-operative farming could more easily give assistance to farmers. He showed by reference to figures that the burden of Land Revenue in the Panjab was very much lighter than the corresponding burden in Italy, and gave it as his confirmed opinion that the average Panjabi peasant was much better off and more intelligent than the average Italian peasant. He saw no reason why the system of co-operative farming should not be introduced into many parts of India. He recognised that it should be possible in highly congested areas though in scattered areas the people were often too conservative to part with their small holdings.

The first speaker said he was most doubtful about Mr. Strickland's comparison of the Italian and the Panjabi peasant, and asked the writer if he had sufficient evidence to show that the conditions of large peasants in northern Italy was worse than that of the Panjabi peasant.

PROFESSOR JEVONS complimented the reader of the paper and asked him to explain the sort of State assistance received by the co-operative farms in Italy. He pointed out the illustration of Russia where the Government had introduced State farms which were run on capitalistic lines with profits to the State. The experience of Russia also showed that it was not practicable to start co-operative farms in congested areas and that it was most successful in larger areas of waste lands very far from the inhabited villages. Finally he concluded that individualistic spirit was too strong in India and that 50 to 75 % of the cultivators refused at first to go into co-operative organisation.

DR. HYDER desired to know whether the average Panjabi peasant was much better off than the average Italian cultivator, or whether Mr. Strickland had not particularly in mind the cultivators in the new Canal Colonies of the Panjab. He would further like to know how Mr. Strickland had arrived at his conclusion—whether he had simply compared food and clothing, or had taken account of such items as education, sanitation, etc.

The next speaker said he would like to ask the writer what sort of tenure the establishment of co-operative farms would give. It had been said by one of the speakers that the day of the small holder was doomed, but he was rather of opinion that the modern tendency in Central and Eastern Europe was to split large holdings into smaller ones. As regard State assistance, he felt that the best help was self-help, and that co-operators must work for themselves and must not depend upon the State. Even in Italy, State aid had been given only under pressure. He thought there was ample scope in the Panjab to try the experiment.

MR. MYLES said that instead of the day of the small holder being doomed as one speaker had stated, he thought that in many parts of the world it was rather coming. He showed that the economic causes which had operated in England in the direction of large holdings in the later 18th and the early 19th century had now been considerably modified through the improvements in transportation which had facilitated the importation of food stuffs. One effect was a new demand for small holdings, but such of these as he was familiar with particularly in Scotland were not backed up with a good co-operative organization.

MR. STRICKLAND in reply said that in regard to the kind of State aid, the Government could lend loans to these Co-operative Societies without security, whereas in the case of individualist holdings they would have to take securities when granting loans. He thought that the Panjab Canal Colonies offered a good opportunity to try the experiment. He explained that in Italy large areas of land had been given for this scheme by religious bodies, and he thought this example might be followed here. He finally regretted that time did not admit of his answering all the points that had been raised.



## PROGRESS IN THE CONSOLIDATION OF HOLDINGS IN THE PUNJAB.

By H. CALVERT, ESQ., I. C. S., REGISTRAR CO-OPERATIVE SOCIETIES, PUNJAB.

In a recent number of the *Indian Agricultural Journal*\* I gave an account of the experiment which we are making in the consolidation of scattered holdings in the Punjab; since that was written (September 1921) considerable progress has been made and much valuable experience has been gained. I propose now to bring the account up to December last.

The work has been chiefly carried on in the central districts of Jullundur, Hoshiarpur and Gurdaspur; these districts enjoy what is for this province a moderately good rainfall: two are sub-montane, and the third, Jullundur, has long been known for its fertility as the "Garden of the Punjab". They were cultivated at a time when districts to the south and west were barren wastes; the presence of a plentiful supply of water only twenty or thirty feet below the surface led to the construction of wells in a period when the possession of a well was a sign of wealth and prosperity; land could be mortgaged here when it was hardly worth owning elsewhere; it commanded a price at a time when land in other districts was almost without value. In a province of precarious rainfall, these districts became populous while others remained thinly inhabited and they have continued decade after decade to be the most congested tract in the province. According to custom, the land of each peasant proprietor has been divided equally amongst his sons, or his sons' sons; in the course of time, new fields have been formed out of the waste where it seemed that the effort would bring a reward; families have died out and left their lands to distant relatives; others have become poor and have been compelled to sell part or the whole of their property;† others again have been more fortunate and have been able to acquire plots here and there and add them to their possessions. In some cases, brothers have kept their possessions in common; in others they have divided it into shares; and where partition has been made, it has become customary for each co-sharer to get a part of each kind of land, and even of each field. Generations of inheritance and partitions, of purchase and sale, of breaking up the waste and abandonment of unsuitable fields, have led to the holdings of each family or owner being scattered all over the village area in anything from four to forty or even more separate small plots. In short the Punjab reproduces the same feature of excessive fragmentation which has characterised France, Germany, Japan and other countries, and this feature has become most marked in these districts of Jullundur, Hoshiarpur and Gurdaspur. The evil has long been recognised, but it has been accepted as an evil for which no suitable remedy has been found. Mr. Keatinge in Bombay prepared the ground for action by collecting information as to what was being done in other countries by legislation and otherwise and his work attracted attention here, with the result that the Financial Commissioners directed a pamphlet to be prepared showing the benefits

\* Vol. XVII, Part I.

† When a man has inherited through the female line, he has frequently been compelled by public opinion to sell the land back to other owners in the village (Joseph Rohtak).

which might be expected from consolidation. Their interest in the matter led me to consider the practicability of an actual experiment, and to try to put forward a scheme which might prove attractive to the small owners of the province.

Before I pass on, it seems necessary to distinguish this work of consolidation from a measure with which it has sometimes been confused namely *killabandi*.

*Killabandi* is officially defined as the substitution of rectangular fields of the uniform size of one *killa* each for the irregular fields, some minute, others inconveniently large, and all of haphazard shape, into which the lands of a village are ordinarily found to be divided. The actual size of a *killa* is of minor importance; it is an acre or something similar. As originally devised, *killabandi* was to be applied to waste areas only; but its advantages where canal irrigation was beginning were so great that it was decided to introduce the measure into old proprietary villages wherever possible; the success attained has led Government to make its adoption a condition of irrigation from a perennial canal.\* This *killabandi* really consisted in laying out a village area like a chess board; it gave straight water-courses, even-shaped fields, and much convenience in the application of canal water. It provided a permanent measurement of the village, with fields in areas which the most ignorant peasant could understand; it saved constant disputes as to field boundaries, as these boundaries were all in straight lines; it facilitated crop inspection, and enabled owners and tenants to check the demand for revenue and water rates, for these were given per *killa*.† Another great advantage was that it enabled the people to manage their affairs without the interference of the *patwari*. The system has proved very valuable in several districts where canal irrigation has recently been introduced, but it has not been considered desirable to introduce it into other districts. Where the population is heavy, where land is valuable and where holdings are small, it has been the opinion that in the eyes of the people the amount of dislocation caused by the change would outweigh its advantages. An attempt to introduce it in Karnal failed and the Settlement Officer wrote that "it was soon evident that the self-cultivating owners of the Eastern Punjab were not disposed to accept a system which partitioned their best fields and obliterated the boundaries of their ancestral holdings, offering them only in return the remote advantages of more accurate canal assessments and possible immunity from remeasurement. The only success achieved was in estates owned by single proprietors, who recognised the advantage in having fields of a uniform size for calculation of their rental. Elsewhere the system was definitely abandoned."‡

The main idea of *killabandi* was thus to secure a uniform and convenient size for fields, with straight boundaries; it was quite distinct from the attempt to collect the scattered areas belonging to the same owners into solid blocks; indeed, it was expressly prescribed that "efforts should be made to cause the least disturbance of existing hold-

\* Settlement Manual, Appendix XIV.

† See para. 33, Sett. Report, Hafizabad.

‡ Karnal Sett. Report, para. 33.

ings possible, and unless the people specially desire it, no attempt should be made to amalgamate holdings scattered in different parts of the estate".\* So far from *killabandi* being comparable with consolidation, it was almost antagonistic to it as the official order was that each *killa* should be given to the man who owned most of it before, † and the total number of fields was sometimes increased, instead of decreased ninety per cent. as in consolidation. In some cases, it is true that the owners gave up scattered fields and consolidated their holdings;‡ and to this extent there was real adjustment, but this appears to have been an incident in the process of *killabandi*, rather than an essential part of it.

It is interesting to note that even against *killabandi*, there was considerable opposition: at first all the villages refused to have anything to do with it: the patwaris misled the people with tales of government treachery and foretold confiscation of property.§ Also it is worth noting that even this beneficent measure was not applied to land attached to wells and other valuable plots near villages where subdivision is minute.||

Enough has been said to show that *killabandi*, valuable though it is, is not the same as consolidation; in a few cases it was accompanied by consolidation, but the official orders incline to restrain the attempt to combine the two. In consolidation, the owners are assembled together after much preliminary preaching, and when all have agreed to the principle of amalgamation of scattered plots, and to the qualities of land they wish to be considered, each in turn is asked to indicate upon the village map the spot where he would like to have his parcel of land; when this is completed, the staff proceed to work out areas so that each owner shall have his land around the spot chosen. This involves much adjustment and unending search after compromise; but as the advantages are more and more clearly and more and more generally recognised the desire for the compact block of land becomes stronger than the desire for the particular spot, and minor differences melt before the joy of a compact holding. The actual process may take weeks or months, but the trouble is amply repaid by the results achieved. In carrying out *killabandi*, there were many disputes, leading to re-adjustment by higher authorities, and many appeals which had to be dealt with in the usual way. In consolidation, we have to get everybody satisfied before we approach the Revenue Authorities, as one successful objector might upset the whole arrangement.

---

\* Settlement Manual, Appendix XIV.

† C.F. amongst other references, para. 25, Settlement Report of Gujrat.

‡ Sett. Report, Wazirabad, Sharakpur and Gujranwala tehsils, para. 28, also para. 31 of the Report on the Hafizabad Settlement:—"In villages where the owners were reasonable and on good terms among themselves, they allotted the *killas* amicably in consultation regardless of previous possession, thus avoiding having each one's fields scattered about in all directions, the officials merely making entries in *khataunis* in accordance with such distribution and assisting at the end in making up deficiencies and reducing excesses compared with shares".

§ Sett. Report, Hafizabad, para. 29.

|| *Ibid.*

When I first made the suggestion to a number of owners that the Co-operative staff should try to effect consolidation, opinion was practically unanimous that local difficulties would prove too great. However, we had gained considerable experience of what could be done by steady preaching; we knew that we enjoyed the confidence of the people; we had in our societies men who had grasped the fact that great advantages were open to those who would sit down together and try to solve difficulties on a basis of equal treatment for all, and we thought that by patient persistent propaganda we should in time find a village where the owners would at least give the system a trial. A scheme was drawn up and placed before the people; experienced members of the staff worked hard in villages where the co-operative spirit was strong and finally succeeded in persuading some members to allow us to show what could be done with one or two small areas dependent on rainfall and so of less value than the rest. The work proved very difficult, but the importance of the subject was so great that the Financial Commissioners secured for me with effect from 24th March, 1921, a special staff of two Inspectors and ten sub-inspectors to carry out the experiments. The sub-inspectors were selected from amongst patwaris for their honesty and sympathy with the zamindars; the Inspectors were selected from Kanungos on similar grounds. In spite of the financial stringency, Government has continued to provide funds for this small staff. The result of 20 months' work is that we have definitely passed through the experimental stage into that of positive achievement: we can now say that the people can be persuaded to repartition their lands into compact blocks, and that they fully realise the many advantages to be gained. In theory, the task seems simple enough; but the obstacles are very great. It is still a new idea, and old men do not like change. Widows, with a life interest only, do not see why they should be troubled with what appears to be a very risky exchange; they assume that they will suffer while stronger men will gain; the interests of minors require careful safeguarding; in many villages one or more owners may be absent in America, or Australia, or in a canal colony. Then there frequently seems to be present the memory of a sad experience over the partition of common land where the village patwari behaved dishonestly; even now the patwari generally opposes the measure just as he opposed *killabandi*; his earnings depend upon the amount of disputes and litigation in his circle, he has a small income from the supply of copies of the records and this will disappear; his influence is usually the greater where the records cannot be understood without his help, and the new records are so simple that understanding is easy, where he is himself an agriculturist he is now beginning to assist, but in other cases his influence is against us. Mortgagees have frequently acquired rights over scattered plots, and when credit was given with difficulty it was the best plots which were offered as security; naturally there must be good land given in return. Here again the opposition is disappearing. Then occupancy tenants possess in particular plots peculiar rights under different owners, and they fear that by the exchange their rights will suffer. Owners have, however, been very straightforward in dealing with these tenants, and this obstacle is rapidly giving

way before a better realisation of the advantages. In parts of these districts, and particularly in Hoshiarpur there are hill torrents, known locally as *Ghas*, which do great damage to fields. Every year there is loss, as the light sandy soil gives way before the flood. That this is not a fanciful picture will be clear when it is understood that about one-third of the land in one tehsil is subject to such damage. Now when an owner possesses small plots which are scattered all over the village area, it is one or other of these small plots which get carried away; but if his plots are consolidated into one block, then it is the whole block which may be in danger. This difficulty prevents much progress being achieved in a large tract but efforts are being made to surmount it by arranging the blocks so that each one impinges upon a torrent bed. The danger will thus be shared by all the owners, while each will have part of his land which will be comparatively free from risk.

Then there are difficulties arising from differences in the quality of the land: hitherto, the owners have offered for consolidation their *barani* land, that is the land dependent upon rainfall. But even this varies in quality and this necessitates each owner having a block of each kind. This difficulty also is becoming less marked, as owners are showing more readiness to give up quality for the sake of compactness.

There is one more difficulty that must be mentioned. The staff have not only to get each owner satisfied, but they have to get them all satisfied at the same time, and they have to convince the tehsildar when he comes to attest the new proprietorship, that they are all satisfied. That this is a difficult test will be appreciated by anyone who knows how hard it is to get the officials of one department to approve of anything done by another; but this very difficulty is an excellent safeguard against dishonesty on the part of my staff. Any favouritism shown as a result of corruption would be exposed before the tehsildar as all the people concerned have to signify their satisfaction before the repartition can be entered in the records.

So much for the obstacles, now for the results. In all, consolidation has been carried out to greater or less extent in 126 villages; it is being now carried out in several more. From this it must not be gathered that the whole area of these villages has been repartitioned. The owners usually give us a portion only at first, and see what we do with it; but the most convincing tribute to the work is that a further portion is not infrequently offered as soon as the first has been finished. Usually the whole rain-irrigated (*barani*) area is first offered; but sometimes it may be that only the Mohammadan or the Sikh section of the village will come forward with their land, and the remainder offer their holdings when they see how nice the first area looks.

In all some 8,500 persons have offered their rights for consolidation; thousands more are ready and will be dealt with as soon as their fellow owners have come round to the same view.

The area so far dealt with is rather less than 20,000 acres. In my previous account I gave details for the number of fields before and after consolidation and have been taken to task for exaggerating the work done. A careful investigation, however, showed that the decrease in



the number of fields is by no means a very inaccurate measure of the success attained. However, we now have tried to count the parcels held by each owner or body of co-sharers before and after consolidation. We may, I think, say that about 35,000 scattered parcels of land have been consolidated into 1,500. The average area owned separately in one place has risen from half an acre to 4 acres.\* Perhaps, the result will be clearer if I give actual instances.

In Sargundi (Tehsil Phillour), the 19 Sikh owners had 182 fields in 157 blocks, each has his land now in one place. One owner had his land previously in 26, and another in 24 different places; the average was 8 places per owner. The blocks are so arranged that as far as possible each touches a road, so that access is obtained without crossing the field of another. Two owners had only one block each before consolidation, so that it might appear that they had gained nothing from the change; but in each case, the plot has been moved so as to touch their well-irrigated land, with the result that they were bearing sugarcane, while the old plot was under *chari* (millet). The man who formerly held land in 26 different places has now a compact block of over 18 acres. The other half of the village is owned by Mohammedans who are awaiting the return on leave of one of themselves, before they follow the example of their Sikh fellows.

In Goraya, a small plot of rain-land (*barani*) was first consolidated, and the experiment was so successful that a large block of well-irrigated land was offered. The net result is that 543 fields owned by 24 owners (or bodies of co-sharers) which were in 494 different blocks have now been re-adjusted into 84 blocks. Owing to the local features, there had to be separate blocks for (1) *chahi* or well-irrigated land, near wells, (2) for *chahi* land distant from wells, (3) *barani*, or rain-irrigated land, that is to say that most owners had to be given two parcels of *chahi* land, as it was not possible to give to each all his *chahi* land near to the well. The happiest man there at my inspection was the owner of the smallest area. He had rather more than one acre, but it was scattered in seven different places; now he has one plot near a well and another in the *barani* area. In village Semi, the success was most marked; 494 blocks had been consolidated into 42. The Secretary of the local Khilafat Committee had his land gathered from 12 different places into one. Another owner had had his land in 44 places; it had all been collected into one solid parcel of 20 acres near to his well. An interesting case here was an occupancy tenant who was formerly poor and in debt with part of his land mortgaged. He joined the local co-operative credit society twelve years ago, and has now paid off all his debts, redeemed his mortgage, and has got a consolidated plot in which he has sunk a well out of his own money saved through the credit society. There are still some people who do not believe in co-operation; I wish they could have a talk with that man. The smallest owner here has had eight scattered plots consolidated into one.

In Chomo, up to the time of my inspection, 1,367 blocks had been replaced by 153; and the work was being continued with much

\* Under the original scheme, the repartition was to be temporary for four years only. With one single exception, possession has been exchanged permanently.

enthusiasm as the owners have offered the whole area of the village for consolidation. Usually it may be said that the number of fields is reduced to one-ninth or one-tenth of the former figure and the average area is increased nine or ten times. If we count, not fields, but blocks, then the reduction is to one-sixth or one-seventh of the former figure. In 33 villages in one circle dealt with last year, the average area in one place owned by each owner was about half an acre, now it is over three acres. In these 33 villages about 5,000 acres in over 11,700 blocks have been repartitioned into less than 1,600 blocks to the great delight of more than 1,700 owners.

In one village I visited, one man had had his small heritage of less than one acre (7 kanals) in ten different places: now it was in one, and, of course, was of far greater value to him.

We have found men with rights in several wells, and have given them all their *chahi* land around one well: we have found a man with a right in a well, but with his land so far away, he was not putting water on to it, now he has all his land within reasonable distance of one well. We have found areas so minutely sub-divided that they were not cultivated; the fields were of such small dimensions that they were not worth the trouble of ploughing; now these areas are in large blocks and are under crops. There have been many cases where individual owners had scattered plots so small that they did not cultivate them: they were either left waste or had been enclosed by neighbours: at Chomo, one man assured me that he had now half as much land as before, he had lost sight of tiny plots for years and now had recovered them in the form of a single parcel of land. In many cases, the fields were so narrow that they could not be ploughed crossways; these are now in convenient shaped blocks. From the enthusiasm of the cultivators, it is possible to understand what a great burden this fragmentation has been to them: it has restrained improvements, a man cannot use a Rajah Plough in many of these tiny fields; a man with eight acres in sixteen places cannot sink a well with advantage; but now his land is all in one spot, he is sinking a well. In Ghazipur, I saw five new wells in the ground and bricks for a sixth collected on the site; from other villages comes the tale of new wells or of a demand for takkavi to sink them. There is an actual increase of cultivation due to the recovery of the tiny plots mentioned; there is a stimulus to improvement everywhere; there is greater economy in the use of wells, as it frequently happens that a man's well will irrigate more land than he has got within reasonable distance; now his *barani* land is allotted near to his well and is coming under irrigation. There is saving in cultivation, in time and labour, saving to the womenfolk, saving in water, for it is found that more land can be irrigated with the same water when the land is in one block than when scattered. This has in some cases led men to give up *chahi* land and take *barani* near their well in exchange, or even *barani* in one block where a well can be sunk: disputes over boundaries should now decrease; rents have already risen, for tenants are quick to appreciate the advantages of the compact block. In re-aligning boundaries it has been possible to alter the village paths so that each man's land can be reached without crossing another's field. In short, we have here a measure that confers advantages to all

concerned, and injures none. In no other work that I have seen is there the spectacle of everybody pleased and no one claiming that he has suffered. This is not to say that no one complains, but the complaints are rare, they amount merely to a grumble that while great advantage has been gained, a little re-adjustment at some one else's expense would make these advantages still greater to the grumbler. I have not met a man who wanted the old scattered fields back again.

Here then we have a great reform that amounts almost to a rural revolution, a reform the advantages of which are readily recognised and should be permanent, a reform that ought to lead to great economy in the agricultural operations of these congested districts and may, if the example of other countries is any guide, result in increased production at decreased cost. It has one other merit—it is cheap. There is no object to be gained from an attempt to work out exact figures, but so far, the actual cost is about one rupee or so per acre, if we put it at less than one rupee four annas per acre, we shall have a margin on the right side.

There is just one other point that deserves to be emphasised—so far as we have gone, our success has been obtained in villages where there has been a good credit society for a number of years. If a co-operative credit society has worked well for ten years, then it is usually found that there will be good chance of a consolidation of holdings society. Sometimes I find that even friendly critics suggest that this work has nothing to do with co-operation, these overlook the fact that it is the co-operative spirit, the spirit of mutual help, the spirit which seeks the good of each through the good of all, the spirit which accepts a little sacrifice for a common good, it is this spirit which makes consolidation possible. I think I am correct in saying that no consolidation has been done by the staff where there is no co-operation. The same characteristics which make for successful co-operation make also for consolidation. There must be the same subordination of factionousness, of selfishness, and of domination of the rich over the poor, of the strong over the weak. If this movement towards consolidation is to be successful, we must please the weak as well as the strong, the poor as well as the rich—every one must have an equal voice if we are to get the consent of all. The advantages are so great and so obvious that it is easy to underestimate the intense feeling of affection of the cultivator towards his ancestral holding. We are apt to forget what the small owner has to remember. He is asked to give up all he has, everything he depends upon for his livelihood, for what may or may not be a good exchange. If we try to place ourselves in his position, we shall be able to appreciate his fear that he may be a loser by this new scheme. It is for this reason that I advocate careful progress on purely voluntary lines for another year or two before attempting any measure of legislation. We have to create a strong public opinion in favour of consolidation, before we can think of forcing the pace. We are gaining popularity rapidly, we cannot meet the demands for the special staff, we are preparing the ground for a greater revolution. The experiment is worth your notice.





## DISCUSSION ON MR. CALVERT'S PAPER.

MR. CALVERT supplemented his paper on "Consolidation of Holdings in the Punjab" by laying a large number of maps before the Conference. One\* of these showing the position of a man who would not join in when redistribution was taking place created a great impression on members. He explained what progress had been made, and the difficulties the Co-operative Department had had to contend with.

MR. TREVASKIS circulated a series of maps dealing with the Enclosure Movement in England, and the similarity between these and Mr. Calvert's maps was most noticeable.

MR. GULEM read extracts from a paper he had prepared on the same subject. He pointed out that those who had been most enthusiastic in attempting to introduce some form of consolidation in India had been wholly prompted by the extraordinary success and added prosperity in European countries as a result of consolidation. But while he believed that the scheme would work with far greater success in India he felt that the law of succession in India would present insuperable difficulties. In England the law was one of primogeniture by which land was inherited only by one successor, whereas in India land was divided among so many sons of a proprietor; so much so, that even though the lands were consolidated now they would in the course of a few generations become divided into so many small holdings. He did not want to discourage the workers in this direction but only wished to point out that the results in India would not be the same as was the case in England.

MR. JEVONS complimented Mr. Calvert on such an important contribution. He referred to a more or less similar scheme attempted by Mr. Mehta in 1912 in the United Provinces and said that this was in reference to the lands under the Court of Wards where there was no confusion of ownership and where the question was only of tenancy. He then said that the scheme should be proceeded with in stages as otherwise it would become impracticable. Confidence had to be created in the people regarding the success of this scheme and when the people realised its advantages then it would be time for legislation to prevent the evil complained of by the previous speaker.

MR. MYLES asked if Mr. Calvert could inform the Conference as to what steps had been taken in France to prevent fragmentation a second time once consolidation had taken place. Up to the beginning of the war there had been much talk in France of the need for legislation to prevent fragmentation in the case of smaller holdings, and he would like to know whether such legislation had become a reality and how it was operating. He would also like to know if the writer would recommend such legislation here.

DR. HYDER said that all countries had done this work of consolidation and therefore India also should do it. As regards legislation he explained that there were diverse laws in regard to succession and that they were based on customs, etc., of a more or less religious character.

---

\* Reproduced here.

It was therefore impossible to legislate on the matter and the only possible solution was to educate the people by propaganda and other means to establish a custom by which the land reverted to the eldest son or the younger son or to some such individual and was not divided at the death of the owner.

At this stage the conference adjourned for lunch.

**THIRD DAY :—THURSDAY, JANUARY 18th, AFTERNOON SESSION.**

**Continuation of Discussion on Mr. Calvert's Paper.**

**MR. J. LEITCH WILSON** said that at one time in France there was talk of bringing in legislation to ensure that if the eldest son was able and willing to take the whole land and pay pecuniary compensation to his brothers then the other sons would be compelled to accept the pecuniary compensation in lieu of their share in the land. He was not sure whether there was now a statute to prevent sub-division, and he said it would be interesting to consider whether such legislation could not be introduced in India.

**MR. KALE** pointed out that they were discussing the question of consolidation and they would be complicating the case if they were to consider other questions such as the law of inheritance and impartibility. He then explained that an attempt was made by Mr. Keatinge, the Director of Agriculture in Bombay, to bring in a bill on the subject, but it had to be dropped owing to strong opposition. He suggested, however, that the solution of the difficulty lay in going round the people and educating them on the advantages of consolidation. After this had been done then the question of legislation in regard to impartibility might be taken up. He pointed out that legislation must be on a voluntary basis. In conclusion he did not want to complicate the matter by considering other issues at this stage.

**MR. STRICKLAND** agreed that legislation should be on a voluntary basis, and said that there was a law in the Punjab by which Jagirdars could not divide their lands. He said that when they had got a co-operative staff in the Panjab which was able to bring about consolidation, it would not be wise policy to defer consolidation because thirty years hence even with consolidation people might have reverted to the same position as they were in now. It seemed to him much better to go ahead and take steps to rectify renewed sub-division when it appeared.

**MR. CALVERT** by way of reply said that as regards the law of succession they had worked only for twenty months which was nothing in the life of a nation. He said that they should go on with the work and make it as wide as possible and leave the solution of future difficulties to the next generation. He agreed with Professor Kale in thinking that they should not overburden this question with other considerations. He further emphasized that this was not an easy task and the co-operative staff had to work with patience.

## CO-OPERATION AND THE MARKETING CONDITIONS IN RURAL AREAS.

BY T. J. KUMARASWAMI, M. R. A. S. (LOND.), RESEARCH SCHOLAR  
IN ECONOMICS, UNIVERSITY OF MADRAS.

Any estimate of the probable effects of co-operative organisations for purchase and sale in the rural tracts must be based on an understanding of the present marketing conditions in those parts. So I shall begin with a description of the present conditions.

At present there is no organisation among the agriculturists themselves to market the farm produce or purchase their requirements, with the result that they get a very low price for what they have to sell though they have to pay dearly for their purchases. Now, middlemen, mostly money-lenders, assume the risks of distributing the surplus supplies of the villages. They are Mandy-merchants (Mandy—a place for marketing and storing commodities), owners or agents of rice mills, brokers and commission agents of the exporting firms and agencies. Immediately after the harvest the needy ryot who has to make a number of money payments takes the produce of his lands to the Mandy in the nearest town. As soon as he goes there he will find a number of people coming and asking for rates and inspecting his goods. Then the Mandy-merchant, if he has not any orders from outside merchants at higher rates, will arrange for the disposal of the commodities locally. He will get his commission from the seller as well as from the buyer. The buyer, if it is paddy, will husk and prepare it for the rice merchants who used to go to such people and gather in driblets to supply the distributing agencies; if it is ground-nut the agents of the European firms purchase it when it is brought to their godowns located in the neighbourhood of such villages. They prepare it afterwards for the market. Similar conditions are obtained in the marketing of cotton.

In all these cases a number of middlemen are engaged as brokers and commission agents to secure a good supply from the villages. If these crops are sold collectively by the villagers through a co-operative society they stand to gain at least 20 per cent. more than what they get at present. Co-operation aims at the elimination of the unnecessary middlemen and economic waste. If these crops are prepared for the market in the villages or in the neighbourhood they will provide some subsidiary occupation to our villagers not to speak of the training it may give them in business methods. Paddy can be husked, ground-nut decorticated and cotton ginned locally. This will save much in the carriage expenses. These economies will give a stimulus to the growth of capital in our villages.

Such savings will increase if similar organisations are formed for the purchase of the requirements of the villagers. Now he (the ryot) gets his cloth from the draper in the town on credit at a price which is generally 20 to 50 per cent. above that charged for others, and he has to



pay interest for that amount in kind which amounts to about 50 to 100 per cent. Sometimes these loans are renewed owing to famines or other unexpected happenings in the family of the ryot. Then the sum trebles itself in no time. The ryot purchases his other requirements as spices and articles of food, kerosene and implements at prices 10 to 20 per cent. above the rates charged for others.

In collective purchase more than in such sales the ryot stands to gain a greater amount by eliminating the unnecessary middlemen as may be seen by the abnormal prices charged for the articles he is in need of by the retailers who judiciously divide among themselves (like the middlemen in urban areas) the right of catering to such customers thus establishing monopolies of predatory rights for themselves.

In this connection, a description of the Shandies or periodical fairs will not be out of place. These fairs serve as collecting and distributing agencies for the local produce and they also cater to the villagers by selling some luxuries which are otherwise procurable only in towns. They are held at places which are at convenient distances to a group of villages and are generally well attended, the attendance being in a direct ratio to their importance. Generally they are held from 6 a.m. to 6 p.m. though half-a-day fairs in the afternoon only are not uncommon. They are held once a week and the prices in such fairs are determined solely by the intelligence and the bargaining capacity of the contracting parties. The ubiquitous middleman is omnipotent in such fairs. He will see that no bargain is concluded without him and he rules supreme in cattle fairs more than in others. Our agriculturists are like Goldsmiths "Moses at the fair" quite helpless in his hands at the cattle fairs. The importance of cattle to our agriculture can never be overestimated. Judicious buying of cattle by co-operative organisations will save a great amount to our ryots.

All such savings will increase the efficiency of our agriculturists and at the same time will give a stimulus to the growth of capital in rural areas. And such an improvement will be beneficial to the country as a whole as our main occupation is agriculture.

It is not my object to subject the middlemen to a severe censure but merely to point out the importance of co-operative organisation to market the farm produce and to supply the requirements of the villages. The average ryot is not financially strong, and individually is at a disadvantage in bargaining and in protecting himself against aggression. Hence the exploitation by the middlemen. Such a state of affairs can no longer be countenanced as it retards the best development of our country life. Unless we solve this problem we cannot improve the condition of our agriculturists. The good effects resulting from a solution of the other rural problems will also be greatly nullified if we do not find a solution to the marketing difficulties in rural parts.

Of late, something has been done in the Madras Presidency to combine the villagers to form co-operative trading societies and organisations for purchase by indent. In some *taluks* in the North Arcot

district there were sales amounting to three lakhs of rupees of articles purchased on indent and it showed a profit of Rs. 60,000, thus working up to a dividend of 20 per cent. Our former Registrar, the late Mr. F. R. Hemmingway, estimated that the members of the primary agricultural societies who were 170,000 in number could make a profit of 31 lakhs of rupees a year—calculating profits at a modest rate of 10 per cent. of the sales. Our late Registrar, Rao Bahadur A. Vedachala Ayyar, worked heart and soul for the success of such societies.

The method adopted by such societies was quite simple. On the requisition of the *panchayat*, the members of the primary societies sent an indent for their requirements. These indents were collected and a big order was sent to the best available wholesale supplier. The articles were distributed as soon as they were received for cash or on short time credit to be collected by the primary societies. Much of the success of these societies is due to the zeal and enthusiasm of the official and non-official votaries of co-operation. Similar arrangements were also made to sell the farm produce.

Such has been the success of co-operative organisations for purchase and sale in small areas. The success of such societies clearly indicates that more economies can be secured by a better organisation along these lines. First, we shall take the starting of such societies for purchase and sale.

The unit for such societies should be a village and in any case it must not exceed three villages. Else there will not be that mutual knowledge among members without which no society can be really co-operative in character.

The members must be made to understand the real necessity for the starting of such a society. Such societies must keep separate accounts and must be kept distinct from other co-operative undertakings though the personnel may be the same in the various co-operative societies of the villages. The membership must be restricted to agriculturists residing in the villages. If necessary, two separate societies may be organised, one to conduct the sales of the farm produce and the other to purchase the requirements of the villagers.

If success is to be achieved, the members must be loyal to the society and must be actuated by the spirit of co-operation—(all for each and each for all). After all it is not very difficult to secure the loyalty of the members if the management is really efficient and tactful. Nothing succeeds like success. If necessary, a paid manager may be appointed who knows his business thoroughly well.

In the trading societies referred to above no provision has been made for the godown accommodation of the articles. In the stores for distributing articles to members and in the sales societies formed for the disposal of the surplus produce of the villagers some sort of godown accommodation is necessary. It may be rented or owned. Everything depends on the magnitude and success of the business.

A share capital must be raised to provide funds for meeting such expenses. It must be greater in amount for the stores societies as they will have to pay for the purchases. If cash sales are insisted upon we need not raise much share capital as the proceeds of sales will increase the working capital. Members may also be encouraged to make deposits in such societies. The increasing economies brought about by such societies may also stimulate the growth of such deposits. We can also develop a system of co-operative exchanges by a mutual understanding between the societies for purchase and sale for persons who are members in both of these societies. The net profit must be divided *pro rata* to the contribution of the members, not to the share capital but to the sales or purchases as is common in the consumers' co-operative societies.

In the societies organised for selling the farm produce the following are the difficulties encountered :—

- (1) We have to collect, grade and sample the supplies on lines best adapted to meet the market requirements.
- (2) We have to maintain a granary or godown.
- (3) We have to make provision against loss by deterioration or damage caused by insects or other agencies.
- (4) We must avoid undue competition among ourselves.
- (5) We must find a market for the goods.

All these difficulties can be overcome by an efficient management. The agricultural department has suggested many methods by which we can provide against the loss due to insects, etc., in the granaries. The last two problems can be solved by a federation of village societies for purchase and sale and the urban stores and by a system of scientific distribution. We can get into direct touch with the wholesale agencies. If we organise ourselves properly the wholesale agencies as the big exporting firms, stores, etc., will themselves come to us. Our dealing in bulk is a distinct advantage in our favour. They are assured of the quality of our goods and getting a regular supply and in bulk which will save them much time and money. Our agricultural holdings are small and the return for the individual farmer is also small. Hence the imperative necessity for collective bargaining in marketing our farm produce.

The chief factor contributing to the success of such undertakings is business capacity. If we cannot get capable business men as honorary officers we shall appoint them as paid managers or secretaries. The wants of our agriculturists are not too many. Salt, kerosene, cloth and a few articles of food exhaust the list. Village stores will be a success unless it is mismanaged by inefficient or dishonest men. Perhaps the only difficulty will be the want of funds for the agriculturist to make cash purchases. This can to some extent be overcome by securing a short time credit accommodation within his means to the honest ryot at the primary co-operative credit societies who will guarantee or pay for his purchases at the stores.

The handloom weavers and those engaged in cottage industries may also be admitted as members in such sale and store societies.

In all such co-operative societies the members must be careful not to sully the fair name of co-operation by dealing in inferior and spurious stuffs or by bad practices as dealing out short weights, etc. If they are careful about it, their success is assured. Honesty is the best policy in such businesses.

Lastly, we may also start co-operative societies for preparing the articles to the market by providing for the husking of paddy, for the ginning and packing of cotton, for decorticating ground-nuts, for the crushing and refining of sugar-cane. Many of our rural areas producing such products are very near the ports from which they are exported. For example, in the South Arcot district noted for its ground-nuts and sugar-cane we have two outlets, namely the ports of Pondicherry and Porto Novo, very near the source of production. Such industries may be started at convenient distances to serve a number of villages and if the magnitude of business warrants it every village may have one such organisation.

By propaganda work conducted by the officials and non-officials and by mutual co-operation between them we can solve the marketing problems in no time. The economies effected by solving these problems will stimulate the growth of capital in the villages which in its turn is sure to result in increased efficiency in production not to speak of its good effects from a social point of view.

## DISCUSSION ON MR. KUMARASWAMI'S PAPER

MR. TREVASKIS pointed out that in the Lyallpur District of the Punjab they had co-operative commission shops which sell agricultural produce in much the same way as had been described in Mr. Kumaraswami's paper. These shops were found to offer considerable advantages over the system of sale by "mandi". It could not be doubted that the zemindars lost a considerable amount on account of false weights when they sold their crops in the 'mandis'. Another great advantage of the commission system was that any agriculturist who was in urgent need of money was not obliged to sell his crop immediately at an unfavourable price but had only to bring it to the commission shop. There he could get an advance of 75 % of its value and the crop would then be sold when a favourable opportunity offered. One difficulty that had arisen circled round the question of management, *viz.*, whether it was better to have a businessman or a zemindar. A businessman was generally better up in accounts and understood the system better; there were often complaints, however, that he was unsympathetic towards the zemindar. The zemindar, on the other hand, though sympathetic, had not as a rule got the business acumen necessary. The difficulty had in some cases been surmounted by having one as the manager and the other as the assistant manager. These commission shops were financed by the central co-operative banks which could advance money to them without asking for security, though this would not be possible in the case of individual dealers.

MR. CALVERT explained that in the Punjab there were two or three European gentlemen with large private lands who had associated with themselves most of the cultivators around and formed a large co-operative society for purchase and sale for cultivators. He then explained that a scheme was pushed through to form a corporation of grain dealers, but this failed owing to the selfishness of grain dealers who wanted to have all the profits to themselves.

MR. KUMARASWAMI by way of reply said that in a co-operative organisation a really efficient manager was necessary. In the matter of credit accommodation to be given by the central banks he said that not much will be necessary and even the little accommodation required would be only for a short time and could be easily obtained. As regards the organisation of grain dealers referred to by Mr. Calvert he had the least sympathy for such an undertaking because the merchants would harass the poor cultivators. Co-operation was essentially for poor workers to combine themselves against the predatory instincts of the middlemen and if credit accommodation were given to these middlemen then people would be far away from the real spirit of co-operation.

\* See in this connection an article by Mr. Trevaskis on "Some Aspects of Agricultural Marketing as illustrated by the Lyallpur Co-operative Commission Sale Shops," in "The Agricultural Journal of India," Vol. XVIII, Part II, p. 116—Ed.

## RURAL DEBT IN THE PUNJAB—A FRAGMENT.

BY MALCOLM DARLING, ESQ., I.C.S., COMMISSIONER OF  
INCOME TAX, PUNJAB.

### Previous Enquiries : (a) in the Punjab.

In the Punjab, though agriculture is still the only industry of any importance, there is almost no information available as to the extent to which the cultivator is in debt. From time to time enterprising settlement officers have attempted to collect figures for their districts, but for the most part despair of their accuracy has compelled them either to abandon the attempt or to admit that little reliance could be placed on the results. Apart from this so far as I am aware only the following enquiries have been made—

(1) In 1876 the indebtedness of 61 villages in Hoshiarpur was ascertained.

(2) In 1878, in connection with the famine of that year, 223 family budgets were collected from different parts of the Punjab.

(3) In 1896 Mr. S. S. Thorburn, the brilliant author of "Mussalmans and Money-lenders in the Punjab," undertook an exhaustive enquiry into the circumstances of twelve villages in the districts of Shahpur, Gujranwala and Sialkot.

(4) Finally in 1919 and 1920, the two villages of Kabirpur and Bairampur in the Hoshiarpur District were respectively surveyed by Dr. R. D. Lucas and Mr. R. L. Bhalla.

I shall have frequent occasion to refer to the last but so far as my present purpose is concerned, Mr. Thorburn's enquiry is the most valuable as it was devoted entirely to the question of indebtedness. It covers, however, too narrow a field for any conclusions to be based on it for the province as a whole and it is also somewhat out of date.

### (b) Outside the Punjab.

Outside the Punjab there is the same dearth of exact information.

The simplest way to show this is to enumerate the areas in which enquiry has been made, and in doing so it should be remembered that these enquiries afford all the information available for nearly 300 million people. The areas, with the dates of the different enquiries, are as follows :—

- (1) 1875, twelve villages in Ahmednagar ;
- (2) 1891, Nagpur (18,000 tenants) ;
- (3) 1906—10, Faridpur, a district of Bengal, in which the late Major J. C. Jack, I.C.S., made an exhaustive house to house enquiry throughout the district ;
- (4) 1913, Baroda State (a general enquiry made by the Baroda Darbar) ;
- (5) 1917—19, Pimpri Saudagar and Jalgaon Budruk, two villages in the Deccan, which were exhaustively surveyed by Dr. H. H. Mann ;
- (6) 1918, Ajmer-Merwara (10,779 }
- (7) 1919, Mysore State (21,350 } members of co-operative
- (8) 1919, Bengal (4,000 } societies).

In most of these cases there is very little information to be had about rural indebtedness beyond a few figures, some of which will be given later. Major Jack's report, however, and Dr. Mann's two studies are full of facts and very valuable of their kind, but they do not cover more than a district in one case and two villages in the other. The enquiry that is about to be described may at least claim this advantage that it is the first to embrace the best part of a province.

### Origin of the Enquiry.

When I first came into contact with co-operation six years ago I was struck by the fact that, though its primary object was to reduce debt, no one knew how far or to what extent debt prevailed. About the same time, to assist village banks in making advances to their members, a register was introduced in which were recorded the assets and liabilities of each member, including his debts. It was, therefore, a comparatively simple matter to ascertain how far co-operators were in debt. This was done during the year 1918-19 in the case of 55,308 members belonging to 2,106 societies. The returns were prepared according to a prescribed form by the inspectors of the Co-operative Department, all educated men and many of them graduates. The results may, therefore, be trusted. Necessarily only co-operators were considered, and it may be objected in consequence that the return is not representative. The reply to this is that co-operators include all sections of the agricultural community. If, however, they err at all it is not on the side of exaggeration. Subsequent official enquiry leaves no doubt as to this.

### Debt in Terms of Land Revenue.

Before concluding these introductory remarks, for the dryness of which I apologise, a final point must be noted. It is not enough to know how much a man is in debt. We must also find out if we can whether he is seriously involved. The best way to do this is to work out his family budget. In a limited number of cases this has been done—there is no time to give the results to-day—but for over 50,000 people it was obviously impossible. For the mass we must content ourselves with some rough and ready standard of general resources. For landowners, and this paper deals entirely with them, much the best measure of debt is the land revenue as, broadly speaking, the amount a man pays varies with the yield of his land. Viewed as such, it is a form of income-tax, and it is, therefore, not a bad indication of his general position. Accordingly in the tables that follow not only will the amount of debt be stated but also the ratio it bears to land revenue. This will give us some idea of the pressure of debt in different tracts and allow one tract to be compared with another. If, for instance, we find that in two neighbouring districts the amount of debt per head is identical, but that in one district it is 20 times the land revenue and in the other only ten, it is a fair conclusion that the former is twice as heavily involved as the latter.

It only remains to state for the benefit of those who are not familiar with the Punjab that it is on the whole a province of peasant proprietors and that the average cultivated holding per owner does not exceed 8 or 10 acres. The small size of the holdings is indeed the dominant feature of rural economies in the Punjab.

### Results of the Enquiry.

I now give the results of the enquiry for the province as a whole. They are as follows:

No. of proprietors concerned	Percent free of debt	Total debt (in lakhs)	Secured debt (in lakhs)	Average debt per indebted proprietor	Debt's multiple of the land revenue
13,733	17	168	67	Rs. 163	12

There are four salient points about each of which something must be said, *wiz.*

- (1) only 17 per cent. are free of debt;
- (2) net mortgage debt is not more than 10 per cent. of the whole;
- (3) the average debt per *indebted* proprietor is Rs. 163; and
- (4) total debt represents 12 times the land revenue paid by all concerned, whether indebted or not.

### The Percentage free of Debt.

Now if any competent judges have supposed that over 80 per cent. of the proprietors of the Punjab are in debt.

Yet this is what the enquiry suggests. The fact emphasizes the truth of Sir Frederick Nicholson's dictum that "the necessary complement of the peasant proprietor is the money-lender" and it explains too why there are 10,000 money-lenders in the province. In none of the five circles into which the province has been divided are more than 25 per cent. free of debt, and in three districts of the submontane area all but 5 per cent. are involved. Even Mr. Thorburn's enquiry of 1896, which moreover was confined to specially impoverished villages, did not give quite so bad a result as this, for out of 338 owners 12 per cent. were not in debt. Is it possible that debt is even more widespread than 25 years ago? This, however, is a question that cannot be answered here.

For the rest of India few figures are available for the purpose of comparison. I give below all that I have been able to discover—

### *Free of debt.*

1888, the tenantry in the Agra District	22 per cent.
1894, Nagpur (18,000 tenants)	40 per cent.
1901, Baroda State	nearly 40 per cent. of all land-owners.
1907, Faridpur (Bengal)	55 per cent. of all cultivators.
1919, Mysore State (24,350 co-operators)	37 per cent.



These figures suggest that debt is more widespread in the Punjab than elsewhere. On the other hand there is the opinion of the Famine Commission of 1901 that at least four-fifths of the cultivators in the Bombay Presidency are in debt, an estimate which curiously enough tallies almost exactly with the figure for the Punjab. But whether conditions in the Punjab are better or worse than in the rest of India, it is clear that the money-lender spreads his net over the whole country and is perhaps an even more formidable problem than was supposed.

### Mortgage Debt.

Net mortgage debt is only 40 per cent. of the whole and, though it varies from circle to circle, in each one it is less than half.\* The interest of this lies in the fact that, as the mortgage debt of the province has recently been ascertained, it affords a basis for calculating total debt. We shall also be able to determine its fluctuations from year to year. I have dealt with the importance of this elsewhere.

### Average Debt.

When it is remembered that the average cultivated holding in the Punjab does not exceed 10 acres, an average of Rs. 163 for each indebted proprietor is considerable. But a figure standing by itself is of little value. Let us compare it, therefore, with the results of the enquiries that have already been mentioned.

These can best be expressed as follows:—

#### PUNJAB.

		<i>Average debt.</i>
	Rs.	
(1) 1896, 9 villages in Sialkot, Gujranwala and Shahpur. (Mr. Thorburn's enquiry).	562	} per indebted owner.
(2) 1918, 43,733 proprietors, (present enquiry).	(a) 463	
	(b) 385	per owner.

#### OUTSIDE THE PUNJAB.

(3) 1875, 12 villages in Ahmednagar ..	371	per occupant.
(4) 1907, Faridpur district ..	121	per indebted cultivator.
(5) 1913, Baroda State ..	450	per indebted holding.
(6) 1917, Pimpla Saudagar village (Deccan).	225	per indebted family
(7) 1918, Ajmer Merwara (10,779 co-operators).	379	} per co-operator.
(8) 1919, Bengal (4,000 co-operators)	120	
(9) 1919, Mysore (24,350 co-operators)	273	per indebted co-operator.

\*Not infrequently a man who has mortgaged part of his land will take a mortgage of part of his neighbour's land. By *net* mortgage debt, therefore, is meant the amount that remains after deducting the consideration for the latter from the consideration for the former.

No doubt figures collected in widely-scattered areas, at different times and under varying conditions can have but little comparative value; but these at least show that debt in the Punjab is not insignificant. Of all the figures given the most instructive for our purpose is the first, as it not only relates to the Punjab but is the result of exact enquiry. It is naturally higher than ours as the nine villages in question were seriously involved. It is even higher than appears as in 1896, owing to the greater value of money, a debt of Rs. 562 was a much more serious affair than it would be now. The Ajmer figure, too, is interesting as it relates to a tract not very far from the Punjab and the results are in both cases almost identical.

### Total Debt of Proprietors in the Punjab.

For the province as a whole debt is 12 times the land revenue,\* which means that the total debt of the proprietors of the Punjab is about 56 crores. Actually, however, there is good reason to believe that it is more than this. The mortgage debt of the province (excluding occupancy tenants) was last year ascertained to be about 34½ crores. As we have seen, my enquiry suggests that net mortgage debt is only 10 per cent. of the whole. If, as I think is fair, we assume that gross mortgage debt is not more than 50 per cent. of the whole, total debt will be 69 crores. To be on the safe side we may put it at 65 crores, which is about 14 times the land revenue. With this multiple as our standard we can form some idea of the pressure of debt upon the peasant proprietor of the Punjab. Broadly, the land revenue demand absorbs about one-fourth of the *net* income of the land. Accordingly, a multiple of 14 means that the average proprietor's debt is equal to 3½ years of his net income. Viewed thus the burden can hardly be regarded as light. On the other hand, if debt and sale value are compared, the burden can hardly be regarded as heavy, for during the five years ending with 1921 land sold in the Punjab at an average price which was equivalent to 181 times the land revenue payable upon it. It is, however, fairer to express debt in terms of net income than in terms of sale value, as the latter is notoriously inflated and bears little relation to yield.

### Comparison with Prussia.

At the same time it cannot be too clearly emphasized that in any Western country a debt of 65 crores or £13 millions, formidable as it is, would be considered a very small one for a province of 21 million inhabitants. A single instance will show what is meant. In 1902 the proprietors of Prussia who numbered about 600,000—in the Punjab there are well over 3 millions—were in debt to the tune of £377 millions,† and in a single year, 1913, net mortgage debt in rural areas increased by nearly £40 millions, that is to say by an amount which is not far short of the total debt of the proprietors of the Punjab. Yet before the war

\*For land revenue see Land Revenue Report, 1921, Statement IV (Col. 10).

†Figures given me by Professor Max Sering (University of Berlin).

Prussia was as strong in agriculture as any country in the world. It is one of the paradoxes of the subject that debt is as often an indication of prosperity as of poverty. If anyone is interested in this aspect of the question, I venture to refer him to an article of mine in the *Indian Journal of Economics* for January 1921 entitled "Prosperity and Debt in the Punjab."

## Part II.—DEBT IN FOUR SUBMONTANE DISTRICTS.

### The Causes of Debt.

Before embarking on the second part of my paper which deals with rural debt in four submontane districts, a word of explanation is necessary. As the result of the enquiry which has been briefly described I have been led to investigate the causes of debt in different parts of the Punjab, and I have come to the general conclusion that in the Punjab, and probably also in India, nearly all roads lead the cultivator into debt, or in other words that the causes of debt are innumerable. At the same time there appear to me to be four main causes which are continually forcing a man to borrow, *viz.*—

- (1) small holdings ;
- (2) the constantly recurring losses of cattle from disease and drought ;
- (3) the natural improvidence of a hot country combined with a great insecurity of crop ; and
- (4) extravagant expenditure on marriages and other domestic ceremonies.

In addition there are two causes that make borrowing easy, namely facile credit and a vicious system of money-lending. The first four explain why a man *must* borrow, the last two how he *can* borrow, and it is a combination of "must" and "can" that explains the ever-increasing debt in the Punjab.

Now it is not contended that these six causes are everywhere dominant. They vary indeed from tract to tract, and that is why it is not sufficient to study debt in one area alone. For the purpose of my own study I have divided up the province into six circles, and as six circles can obviously not be adequately discussed in a single paper, I have thought it best to give you my conclusions, such as they are, for a single circle only.

### Description of the Tract.

This circle embraces the four districts of Sialkot, Gurdaspur, Hoshiarpur and Ambala which lie at the foot of the Himalayas between the Chenab and the Jamna. No less than five rivers run through it, or seven indeed if we include the Ghaggar and the Ujh. Much of the tract is riverain country, which invariably means water-logging, disease and debt. Owing to a high rainfall, which runs from 30 inches to

well over 40, famine is unknown, and the land being fertile, population is unusually dense. Holdings are correspondingly small, and as the latter are generally split up into tiny fields scattered round the village, good agriculture is at a discount. Through most of the tract the Rajput predominates, a tribe that is notorious for bad husbandry and extravagance. Nor are the other tribes seen at their best. Finally, thanks to the security of British rule and to the slack-twisted character of much of the population, the tract has long been the happy hunting ground of the money-lender. The combined effect of all these factors is almost universal debt. In three out of the four districts only five per cent. are not involved, and of these areas it might almost be said in the words of the great but fallacious French philosopher that "man was born free, but is everywhere in chains."

### Results of the Enquiry.

I will not bother you with the figures for each district. Suffice it to say that returns were obtained for over 12,000 proprietors and that the following results emerge :—

- (a) only 11 per cent. are free of debt against a provincial average of 17 ;
- (b) average debt per indebted proprietor is Rs. 525 or over Rs. 60 more than the figure for the whole province ; and
- (c) total debt is 20 times the land revenue.

It is clear, therefore, that we are entering a tract that is seriously indebted. It is probably the worst in the province, a point that should be remembered in judging the results.

### The Money-lender.

Many and various are the causes of debt, and most of them are to be found here in greater or lesser degree. But dominating and aggravating them all and turning them irresistibly to his advantage is the money-lender, who has four-fifths of the cultivators in fee. Formerly the ally, if not the servant of the village community, he is now too often its master. The security of British rule and a legal system, in which the spoils are ever to the astute, have given him an opportunity which he has been quick to seize. With the Pax Britannica land rose rapidly in value and the cultivator was only too ready to pledge it to smooth away the difficulties of life and to meet the extravagant demands of social custom. In this the Rajput set the standard, and it was a standard that compelled frequent recourse to the money-lender. Nothing could be more demoralising, and though little is said about this factor in the present paper—the subject is being dealt with at length elsewhere—it must be remembered that throughout he is the evil genius in the background and his system the *fons et origo mali*.

### Small Holdings.

After the money-lender nothing has affected the tract more profoundly than the smallness of the average holdings. Nature is bountiful, but man is prolific. In the East every advantage of nature is

sooner or later neutralised by an increase of population. It may almost be said that the fertility of land is a measure of the fertility of woman. The pregnant truth, discovered by Malthus, that the happiness of countries depends "on the proportion which the population and the food bear to each other" has ever been ignored\*. Throughout this tract the yield *per acre* is high, but the yield *per man* is low. In the Hoshiarpur tehsil there are 960 people to every square mile of cultivation. In the low-lying riverain country of the Ravi, where little effort is required to secure a harvest, the density is over 1,000. In no tehsil is the average cultivated holding more than 8 acres, and in every tehsil of Hoshiarpur it is no more than 4 or 5. Now, as Professor Carver points out, small holdings invariably mean small incomes†, and in a backward country, where expenditure is less determined by income than dictated by necessity and custom, small incomes sooner or later mean debt. Only one thing can prevent this—lack of credit. In the Bengal district of Faridpur it was found that 50 per cent. of those who were classed as "indigent" had no debt at all as they were "too poor to have any credit." But in the Punjab, owing to the great rise in the value of land, every owner enjoys two or three times as much credit as he did 30 years ago. In parts of Hoshiarpur and Ambala land is four or five times as valuable as it was in the eighties. There is therefore no lack of security, and the money-lender sees to it that there is no lack of money.

Yet, it may be asked, if nature is bountiful why should a man borrow? The answer is that nature is infinitely capricious. The monsoon may fail, or, as so often happens near the hills, the rain may come at the wrong time; or a river may rise and sweep away harvest, hamlet and herd. Under such circumstances to support a family upon a few acres without getting into debt requires a level of skill, industry and thrift seldom attained in a hot country. Undoubtedly it can be done, just as a small sailing boat can weather the storms of the Atlantic. But, unless the boat is both well found and well manned, it will assuredly sink. In India the farm is too often neither the one nor the other, and nature can be almost as destructive on land as at sea. It is usually reckoned that a cycle of five years will give one good year, one bad and three that are neither good nor bad. Now it is only in the good year that the ordinary small holder gets through without a loan. In the bad he will have to borrow for everything he wants, for seed, cattle and clothes, and even for much of his food. It is then that compound interest swells the account and bondage begins. Even in the three middling years he will have to borrow now and again, perhaps to buy a bullock or marry a child. In these years, if he is careful, he will be able to pay the interest due on what he has borrowed before, but it is only in a good year that he can actually reduce his debt. Once in debt, therefore, it is almost impossible for the small holder to escape. If he were thrifty and businesslike he might succeed, but he is rarely either one or the other, and the money-lender is always there to tempt him deeper into the mire. "Holdings are so small" says a settlement officer, speaking of the Gujar Khan tehsil in the north of the Punjab

---

\*An Essay on the Principle of Population, Book II, Chapter XIII,

†Principles of Rural Economics, p. 263.

where the average is four acres "and the margin of safety so narrow, that any misfortune may plunge the zemindar into debt from which he can never extricate himself. A series of bad years, the death of cattle or mere carelessness may lead to debt, while in the best years the surplus produce is so small that the interest is paid with difficulty and from the principal there is no escape. . . . Indeed life is hard and bitter to the cultivator who has to depend on his few acres to support himself and his family." Writing of India generally Mr. K. L. Datta comes to much the same conclusion. "Living as he (the small holder) does near the margin of subsistence, his production is just sufficient to meet his wants when the season is favourable, while in bad years he has no alternative but to fall into the clutches of the money-lender."\*

### Two Concrete Examples.

Let us now take two concrete cases, the two Hoshiarpur villages surveyed by Dr. Lucas and Mr. Bhalla, to which reference has already been made.† Kabirpur is below the average and Bairampur above it. The owners in the one are a thrifless lot of Sheikhs and in the other a hard working set of Hindu Jats. In Bairampur two-thirds of the land is partially irrigated, but in Kabirpur there is hardly any irrigation at all. On the other hand Kabirpur holdings average  $9\frac{1}{2}$  acres against less than 5 in Bairampur. In Kabirpur seven of the ten families of Sheikhs were found to be in debt and unable to make their budgets balance. "This," says Dr. Lucas, "is the state of affairs during normal years, when not a pice is paid back to the money-lender on account of money borrowed on its interest." In his view a small farmer can only pull through if he is not in debt.‡ Despite its greater prosperity the experience of Bairampur is not very different, for the advantages of character and nature are largely neutralised by a bigger population, which is a good example of what was said above. The family budgets show that a Jat with 11 acres cannot support a family of five (including himself) without getting into debt; and that, while in an ordinary year a Gujar with  $6\frac{1}{2}$  acres and a family of four can just make both ends meet, in a bad year he cannot get on without a loan. As 55 per cent. of the owners in Bairampur possess less than 3 acres and, including the land taken on lease, 23 per cent. cultivate less than six, it is clear that holdings as small as those that prevail in this area are incompatible with any real measure of prosperity.§ To secure this, either production must be increased or population reduced.

There is no doubt that throughout these four districts and the same of true part of the central Punjab as well—population tends to outrun subsistence. As long ago as 1879, when holdings were larger than they are now, the Deputy Commissioner of Hoshiarpur remarked that the ordinary proprietor with ten or fifteen acres lived from hand

\*Enquiry into the Rise of Prices in India (1915), Vol. 1, p. 161.

† See the Economic Life of a Punjab Village (1920) by E. D. Lucas, and an Economic Survey of Bairampur (1922) by R. L. Bhalla.

‡ See pp. 64, 103, 109 and 111.

§ See pp. 26, 28, 167—72.

to mouth and was usually in debt, as his holding was barely sufficient to support a family.\* It is no mere coincidence that in Zafarwal (Sialkot) holdings are at once smaller and more heavily mortgaged than in any other tehsil of the district. The two are intimately connected, and if I had time I should be able to show you that the small proprietor in the Punjab is nearly three times as heavily indebted as the larger. It is not that the small owner runs up a bigger debt—the precise contrary is the case—but that debt presses more heavily upon the small farm than upon the large. The small holder is faced with two alternatives. Either supplementary work must be found, or he must be content with the low standard of living that bondage to the money-lender entails. The bolder spirits join the army, and in Hoshiarpur, as in Italy, the more enterprising emigrate. Others set up as carriers or, like the Irish reapers who flock to Scotland for the harvest, go off to the canal colonies once or twice a year to pick cotton or cut corn. Most, however, with the characteristic fatalism of the East, resign themselves to the money-lender as the line of the least resistance, and they do so the more cheerfully as it is a life of comparative ease. Dr. Lucas reckons that a three or four acre farm leaves a man with 200 idle days in the year, and he regards this enforced idleness as a great cause of the peasant proprietor's poverty.† Yet if the latter seeks work elsewhere, as often as not it will be at the expense of his land. Either he will mortgage it, and land is rarely the better for being mortgaged, or he will try and combine two occupations, in which case, as a recent writer says, his cultivation will be poor and his outturn low.‡ From every point of view, therefore, holdings as small as those described are a manifest evil.

### Fragmentation.

And the worst is still to tell. Small holdings are the result of large population and of laws of inheritance which prescribe that each son shall get an equal share of his father's land. That is bad enough, but what are we to say of a custom which requires that the few acres each son receives should be split up into as many fragments as there are different soils in the village, so that all may get an equal share of every kind of land, good, bad and indifferent? Yet this custom is well-nigh universal. In Bairampur the village lands were found to be divided into 1,598 fields averaging about one-fifth of an acre each. Twenty-eight per cent. of the holdings had over 30 fields, and in three cases plots were so small—the smallest was only '014 of an acre—that they had been lost sight of by their owners and had passed into the hands of others. Even the wells are sub-divided and a man's share may be as minute as the odd fraction that governs exchange.§ The more fertile the land, the more it is split up, as fertility and population go together. Accordingly the denser the latter, the greater the evil, and nowhere is it worse than in the thickly populated parts of this area and the Central Punjab.

\* Hoshiarpur Gazetteer, pp. 73-4.

† P. 58.

‡ Keatinge, *Agricultural Progress in Western India*, p. 60.

§ Bhalla, *op. cit.*, pp. 33-4.

In other parts of India too it is as bad, and of the Bombay Presidency we read—"there is hardly a holding that will now conform in size and shape to economic requirements."\* The results of this are obvious. Land is wasted in innumerable boundaries, labour and time are lost in going from plot to plot, enterprize is paralysed and developed agriculture is out of the question. All the evils of small holdings are aggravated a hundredfold, and it may be safely said that till they are consolidated, there can be no permanent advance.

### Cattle Disease.

I come now to the second of our basic causes of debt, the constantly recurring losses of cattle from disease and drought. Year in year out, there is nothing that more insistently drives the cultivator to the money-lender than the ever-present necessity of replacing his stock. Indispensable everywhere, in the East cattle have an almost religious significance. It is not for nothing that in the Bible the rainbow is represented not only as a token between God and man but also between Him and every living beast, and that many hundred years later the ancient but immoral city of Nineveh is finally spared from destruction because, *inter alia*, it contained "much cattle." For anyone who has not lived in a primitive country it is difficult to realise how much a peasant's life may depend on his cattle. Without them his fields remain unploughed, store and bin stand empty, and food and drink lose half their savour; for in a vegetarian country what can be worse than to have neither milk, butter nor ghi? Indeed it is difficult to have anything at all, as all cooking is done with cakes of manure. The very "hukka," beloved of the rustic, can hardly be smoked without the cow-dung fire that is almost universally used. It is not surprising then that India probably contains more cattle to the square mile than any other large country in the world.† Yet in a bad year drought or disease will make holocausts of thousands.

In the great famine of 1869 four districts in the south-east of the province lost over 40 per cent. of their stock or a total of over 600,000 head. Two Rajput brothers, says the official report, lost 8 bullocks, 10 milch buffaloes and 40 cows and calves. Everything died and they themselves, deprived of their only means of livelihood, were forced to sell whatever else they had to keep body and soul together.‡ Even as recently as the last two years the Sirsa Subdivision of Hissar is said to have lost 40 per cent. of its stock by sale, transfer and death. These, however, are famine conditions and, thanks to a good rainfall, serious famine has not to be reckoned with in the districts near the hills. The enemy is disease and it is almost as bad. In 1877 an epidemic carried off two-thirds of the cattle of the Ambala District, and not long ago I came across a group of

\*Keninge, *op. cit.*, p. 69; see also pp. 70-1, 195-223, and H. H. Mann, *Land and Labours in a Deccan village*, 1917, pp. 47-54.

†In 1920, India had 101·5 bovine cattle, horses, mules, donkeys and camels to the square mile, whereas the United States (excluding Alaska) had only 31·2—see article in the *Pioneer*, dated 24th June 1922.

‡Famine Report, Vol. 1, p. 12, and Vol. 4, p. 73.



villages near the Beas, the river that finally stayed Alexander, where in two years 233 co-operators had lost 1,361 head of cattle or about half their total stock. Losses on this scale cripple a man for years, for they have a way of occurring when harvests are bad and resources low. To replace them, in nine cases out of ten, the peasant has to borrow. There can be no doubt, therefore, that loss of cattle is a main cause of debt, a view moreover that was held by both Mr. Thorburn and Major Jack.

It must not be supposed, however, that cattle disease on a large scale is the peculiar misfortune of India. The fact that last year's epidemic of foot and mouth disease in England and Scotland cost the country nearly £1,000,000 is emphatic evidence to the contrary. Only two years ago in Germany I met a landowner who had lost 23 cattle in two months, but—and the point is important—they were all insured. This, rather than the evil itself, is the main difference between East and West. In the West everything, cattle, crops and buildings, can be insured and in the more advanced countries generally is, but in the East almost everything is left to fate—or magic, as the following episode shows. Two years ago an epidemic broke out in the neighbourhood of Bairampur, the Hoshiarpur village that has already been mentioned. The Veterinary Surgeon came out to help, but the villagers to a man flocked to a quack *faqir* whose "charms" made cattle "invulnerable" against disease, and they were all so much of one accord that the *faqir* was paid out of the village fund.\* Similarly in the Rohtak Gazetteer we read that the favourite remedy for cattle disease is a rope strung across the entrance to the village with little tin boxes suspended on it or rolls of cloth containing charms dictated by *faqir* at a rupee apiece. All the cattle of the village are driven out under the rope in a struggling herd and water is sprinkled on the houses on either side with a switch of grass. Finally a magic circle of milk and water is drawn round the whole village, and a pot containing rice or sugar is secretly buried in the land of an adjoining village, presumably in the hope that the disease may pass off that way. Superstitions like these show how primitive agriculture still is in parts of the Punjab, and incidentally they help to explain why the cultivator is like wax in the hands of anyone so astute as the village money-lender.

### The Burden of Debt.

Before concluding this very brief survey of the submontane area some estimate must be attempted of the burden of debt in each district. Fortunately the mortgage debt is known in each case.

The figures are as follows:—

	Lakhs.
Sialkot	.. 264
Hoshiarpur	... 222
Gurdaspur	.. 215
Ambala	.. 180

\* Bhalla, *op. cit.*, p. 134.

To obtain total debt a certain percentage must be added on account of unsecured debt. My enquiry indicates that net mortgage debt in these four districts is 48 per cent. of the whole. Gross mortgage debt is probably not much more, but to be on the safe side let us assume that it is 60 per cent. Total debt, with its measure in terms of land revenue, will then be as follows :—

	Total debt in lakhs.	Debt's multiple of the land revenue.
Sialkot	.. 440	25
Hoshiarpur	.. 370	20
Gurdaspur	.. 358	19
Ambala	.. 300	20

In each district total debt is £2 millions or more, while in Sialkot it is well over £3 millions. These are formidable figures, but are they crushing? This most difficult question we must endeavour to answer. Everything depends upon resources and in this case the main resource is land. What relation then does debt bear to the land? The total debt of the four districts is 21 times the land revenue.\* As land revenue represents roughly one-fourth of the net income of the land, we may assume that debt is equal to five years of the latter.

Or it may be expressed in terms of gross yield. With the help of the Agricultural Department, I have worked out the latter for two out of the four districts, thus—

	Gross yield per cultivated acre.
	Rs.
Gurdaspur	.. 48
Hoshiarpur	.. 42
Average	.. 45
For debt the corresponding figures are—	
	Debt per cultivated acre.
	Rs.
Gurdaspur	.. 49
Hoshiarpur	.. 64
Average	.. 56

As these two districts are less heavily indebted than Sialkot and not more so than Ambala, it may be generally stated that debt in this area certainly exceeds the value of a year's produce.

One more method may be applied. Elsewhere I have worked out the average income of 193 proprietors living in ten villages of Hoshiarpur and Gurdaspur at Rs. 124 a head or Rs. 558 a family. For our present purpose, however, something substantial must be deducted, as their holdings are nearly twice as large as the average for the whole tract. Bearing this in mind I think an average owner's income may be put at Rs. 360 a family or Rs. 80 a head. Now the present enquiry shows that,

---

\*My own enquiry gives a multiple of 20.

excluding those who are not in debt, sub-montane debt averages Rs. 525 per co-operator peasant proprietor. We may therefore conclude that it is roughly equivalent to 18 months' gross income of those who are in debit. In case this is considered excessive, it may be mentioned that in 1878 it was calculated that 62 per cent. of the owners of the Punjab were in debt to the extent of two years' gross income and that for 70 per cent. in Hoshiarpur it was thought to be even higher, in fact twice as high as the present estimate.\*

To sum up, the debt of owners in these four districts may be broadly stated in three different ways, *viz.*, as

- (a) equal to five years' net income of the land,
- (b) exceeding the value of a year's total produce, and
- (c) roughly equivalent to 18 months' gross income of those who are in debt.

In stating these conclusions no claim of course is made to exactitude, but in their favour it may be urged that, though derived from independent sources, they are not I think mutually inconsistent. Thus (a) and (b) read together suggest that net income is about 15 or 20 per cent. of gross yield which is probably not far from the mark; and, if there is a difference between (b) and (c), it was to be expected, as owners do not get the whole produce and those who are not in debt are excluded from (c). Moreover (b) is corroborated by an acknowledged authority. Mr. Calvert estimates that land revenue in the Punjab is equal to about 5 per cent. of a year's gross produce.† If debt somewhat exceeds the latter, it should be somewhere between 20 and 25 times the former. Actually the multiple is 21. Altogether it is difficult to resist the impression that in this area at least debt is a heavy burden. The impression is strengthened if we compare the tract with the moderately prosperous district of Faridkot in Bengal. Twelve years ago total rural debt in the latter was found to be not more than one-fifth of total income, and only 5 per cent. of the cultivators were in debt beyond half their income.‡

#### Debt in relation to the value of Land.

There is one way of stating debt which reduces it to comparatively modest proportions, and that is to express it in terms of the value of land. In the two years, 1920-21, land in our four districts has sold at an average price of Rs. 289 an acre, whereas the corresponding figure for debt is only Rs. 56. For the debtor however, this is a dangerous way of stating the case, for it obscures the fact that debt should be repaid out of income and not out of capital. As we have seen, measured in terms of income, debt is unquestionably high. That in relation to capital it should be comparatively low is due to the enormous rise in the value of land that has taken place in the last 20 years. This is no doubt a sign of prosperity and to the man who sells an obvious advantage. But, as I have endeavoured to show in my article referred to above, prosperity has its shadow, for as land prices rise, debt increases. A man who

\* Punjab Famine Report, 1878-9.

† The Wealth and Welfare of the Punjab (1922).

‡ The Economic Life of a Bengal District (1916), pp. 72 and 198.

20 years ago could raise only Rs. 100 on his land can now borrow thrice that amount and he frequently does so. This would matter little if income kept pace with debt, but for the small holder it becomes more and more difficult to repay one out of the other. In many cases his only way is to sell part of his land, but no true Punjabi sells unless he must. The alternative is bondage and in bondage as often as not he remains.

And here this paper must end, and in conclusion I would ask you to remember that it is only a fragment of a more detailed study upon which I am at present engaged, and that much is unavoidably omitted which is necessary to a proper understanding of the subject.

### DISCUSSION ON MR. DARLING'S PAPER.

MR. DARLING briefly reviewed his paper and pointed out the extreme complexity of the subject and the difficulty of putting one's finger upon the causes of debt. Even so the subject was one of such importance that he considered that enquiries made in the proper spirit would yield most fruitful results. As illustrating the complexity of the subject he showed that particular castes in a certain locality would be free from debt whereas the same castes in another locality were over-burdened with debt. He also pointed out that in districts where economic conditions were prosperous, *e. g.*, Amritsar and Ferozepore, indebtedness prevailed to a large extent. Though a great deal was said about the malpractices of the money-lenders, he personally felt that it was the system that was at fault. He explained that the great indebtedness of the Indian agriculturist was due to his borrowing money for unproductive purposes. Another bad feature was the high rate of interest. He then referred to the various causes of debt such as marriage, domestic expenses, extravagance and litigation. In conclusion he said that it was throughout a gloomy subject, and in his opinion the only effective remedy was co-operation.

LALA SHIV DAYAL complimented the author of the above paper and asked to be informed as to the effect of the Land Alienation Act upon agricultural indebtedness. In regard to co-operative credit societies as a remedy for indebtedness he was surprised to see that the spread of co-operation had been accompanied by an increase in agricultural indebtedness. As to the causes of indebtedness he said he was in entire agreement with the paper.

MR. CALVERT said that through co-operation eight lakhs of old debt had been repaid during the last five years. He then gave statistics to show how much co-operative societies had done towards the reduction of debt, and also explained that the increase of debt referred to by Mr. Darling was for the major part confined to those who were not members of co-operative societies. As regards agricultural money-lenders he explained that legislation might be necessary in order that the agriculturists may not indulge in money-lending or that at least some stigma should be attached to agricultural money-lending as was the case in England. With regard to the Land Alienation Act he said that though it may seem desirable to sell a portion of the land to discharge debts, it was not advisable. It was rather a thorny question and it would be a surprise to many to learn that the Hindus of the Punjab were mostly cultivators and they strongly favoured the Land Alienation Act.

DR. HYDER said that there was no increase in the agriculturist money-lenders as was generally supposed. He agreed with Mr. Darling in saying that marriages accounted for a large portion of indebtedness and suggested that it would be better for the parties entering into matrimonial relations to make economic enquiries about one another just as they made enquiries into their family history.

MR. SODHBANS said that there was no doubt that a class of agricultural money-lenders had sprung up on account of the Land Alienation Act. The agriculturist somehow or other managed to get money from the rich money-lenders and advanced it to small agriculturists. Another feature was that the *banias* or shopkeepers also made advances to small agriculturists at a high rate of interest because they knew that they could get their money back in the shape of produce. He then said that even in localities where co-operative societies existed people borrowed money from the money-lenders to pay the loans borrowed from co-operative societies, and they again borrowed from co-operative societies to repay the money-lenders.

MR. ANTIA pointed out the necessity of a Money Lenders' Act similar to the one in England. In addition to the money-lender being registered there should be a provision fixing the maximum rate of interest chargeable and the manner in which the interest should be assessed. As regards the cause of agricultural indebtedness in India he did not believe that marriages, want of thrift, spending money for domestic purposes and similar causes could be regarded as basic causes. The most fundamental cause he said was the poverty of the ryot and his poverty was increased by recurring famines. The remedy did not therefore lie so much with co-operation. What should be done was to enable the ryot to get a fair price for his produce. Another difficulty was that the ryot was unduly taxed as regards the articles he had to buy. The remedy he suggested was in the starting of purchase and sale societies which would do away with the middlemen. Another remedy was to find some occupation for the agriculturist during his spare time.

MR. CHAMAN LAL KAPUR said that he did not see how prosperity and indebtedness could go hand in hand. He wanted to know how the causes of indebtedness given in the paper should be particularly operative in places which were very prosperous.

REV. E. D. LUCAS spoke of the relative prosperity of the Chamar classes and attributed this to the fact that they had no security to give and so could not get into debt; they also had to spend very little on domestic occasions. Besides the Chamar can turn to any kind of work and had no scruples about doing any type of work and so he was kept employed all the year round.

MR. DARLING by way of reply said that the points raised in the discussion were so wide and varied that it was not possible to answer them all within the limited time at his disposal. In regard to the fact that prosperity and indebtedness go hand in hand, he did not mean that they occurred together, but what he meant was that when there was prosperity the people began to play "ducks and drakes" with it. As regards the opinion expressed that poverty was the cause of debt he did not agree, as when there was no security to give then it was not possible to get loans. As regards agricultural money-lenders he said they certainly were on the increase, and he actually knew of a case where a man who had gathered a few hundred rupees in the course of twenty years in the Army became owner of thousands of rupees in the course of four or five years by money-lending.



## THE PROBLEM OF CATTLE IMPROVEMENT IN INDIA.

BY PRAPHULLACHANDRA BASU, PROFESSOR OF ECONOMICS,  
HOLKAR COLLEGE, INDORE.

(In the absence of the Author, this paper was taken as read.)

An important question which has for some time been exercising the minds of our public men is how to improve the cattle of India. It is felt that such improvement is urgent both in quantity and in quality. Usually the emphasis is given on quantity but, as will be seen below, the need is more for improvement in quality than in quantity. Only in a few places in India, for example, in Sindh and some parts of Madras is the quality of stud bulls at all satisfactory. At present, in some Government dairies, the problem of solution is being attempted by importing stud bulls of superior quality and utilising such bulls of India wherever they are of the desirable quality. Such experiments have been universally successful although they have hitherto been too limited for a vast country like India. The quality of milch cattle also requires to be improved in India. At present the yield of a full grown cow in India is rarely more than six seers (about 12 lbs.) per diem during the period of lactation. In this direction also successful experiments have been made. At Bangalore and Mhow, for example, a full grown cow has been made to yield more than sixteen seers per diem. Thus it seems to have been proved that it is not difficult to improve the quality of our cattle, both draught and milch, when proper efforts are directed in that behalf. The problem is how to make such improvements widespread in India. The solution of this problem again depends upon the problem of how to make the results of such improvements available to the poor masses of the country.

In connection with this question of increase and improvement of our cattle, two measures are usually advocated. One is the stoppage of slaughter of cattle, and the other is that of their export. The arguments advanced for stopping the slaughter are mainly of three kinds, *viz.*, (1) religious and humanitarian, (2) medical, and (3) economic. (1) I shall not deal with the religious aspect of the question because I feel that I am not competent to judge whether or not it is a sinful act to eat meat and slaughter cattle for that purpose. But it should be remembered that the use of meat diet is very restricted in India. The high caste people among the Hindus do not eat meat, and the lower caste Hindus and the Mussalmans, who have no objection, cannot afford to eat meat as frequently as people of western countries do. Yet the number in the aggregate is very large for the whole of India. Sometimes humanitarian motives are advanced against slaughter of animals, but these, however powerful in the breasts of some noble souls, cannot justify a compulsory measure depriving a large number of human beings from having what food they desire to have. This is a matter entirely for propaganda and educating public opinion. The movement of *gov-shala* (cow preservation society) is in this direction. One can only



hope that the same humane sentiments will be extended also to other animals besides the sacred cow.

(2). On medical grounds it is urged that, for people living in a tropical country like India, meat diet is not suitable. This, however, is a point on which medical authorities must agree before economists or other laymen should dogmatise. And when they agree there will be no need of proscribing slaughter of cattle because people will themselves give up the harmful diet. Apparently such authorities are not of one opinion yet. Sometimes authorities are quoted, who condemn the excessive use of meat in western countries. The opinion of such authorities must be cautiously applied in the case of India. What they usually condemn is not the use of meat as a dietary but its excessive use. Excess of most things is bad even when they are vitally necessary for life. In any case it seems that medical authorities will take long to agree on such a question inasmuch as the food requirements of the human body have not yet passed the stage of investigation. The elusive vitamins, for example, one class of which is derived from meat diet, must yield up their secrets before medical authorities can agree finally on this important question. Moreover, if we are to judge of results from experience India is the only important country in the world, an appreciable portion of whose population are averse to meat eating; this aversion originally arose out of religious scruples and is of late being justified by arguments based on medical grounds. Thus neither medical grounds nor experience will justify a person to stop slaughter of cattle for purposes of providing food. Further, if, on medical grounds, meat diet is to be condemned in India, such persons who desire it should condemn and abolish first the consumption of other articles, the effect of which on human body is much worse than meat, *e. g.*, alcohol, opium, tobacco, etc. It is only during the last two years or so that, as a result of the new political movement, a few such articles are being condemned on a wide scale.

(3). The third argument against slaughter is economic. It is said that cattle should not be slaughtered because India has not had enough of cattle to spare. The rest of this paper will deal with this economic argument. But here it need only be pointed out that the aid of economics is usually invoked to cover religious scruples inasmuch as little objection is raised against the slaughter of buffaloes or goats, the milk of which is widely consumed in India. Moreover, the buffaloes supply richer milk than that of cow, the quantity of which is at least proportionately equal to that of cows when the cost of maintenance is taken into consideration. Further, as draught animals buffaloes are as frequently used as bullocks, and can do more arduous work than the latter.

As to the stoppage of export of cattle, the only economic argument advanced is the short-sighted one of present shortage in cattle for the purpose of internal use in India. It is said that, at present, the number is not enough even for India. We should only export the surplus if there be any. As there is no surplus now, we should not allow any export. It is evident that the amount of surplus is a matter which is vitally

connected with effective demand for that article within the country. Ordinarily, the need of a community or country cannot be ascertained by considering the quantity of the commodity only, but also its demand price. This is affected by the use of the commodity as also by the relative position of demand and supply prices. The fact that a substantial quantity of a commodity is exported is enough in itself to show that the demand price in India plus the cost of transport, etc., is lower than the demand price abroad. This roughly proves that the use of such commodity within the country is not very great or that the consumers are so poor that, to them, the value of money is very high. I believe that both these operate in the case of cattle in India, the latter perhaps with greater force than the former. It should be noted that the export of Indian cattle is small. From the point of view of supply, we should take into account the cattle breeder in relation to the demand for cattle. Thus a study of the side of demand is essential to a proper appreciation of the problem of cattle supply in India.

The demand for cattle resolves itself into several demands. (1) *The services of draught cattle and stud bulls.*—In India not only are draught cattle used universally for purposes of agriculture which directly engages more than seventy per cent. of the population, but they are used for purposes of conveyance throughout the country. The rural population consisting of about ninety per cent. of the population depend, to a large extent, on draught-cattle for conveyance within the country. By far the largest volume of internal trade moves by this primitive method of conveyance, and, except in a few localities, especially near the towns, the same is the case with conveyance of human beings. (2) *Milk required by the country.*—The country depends wholly on the milk supply of its own milch cattle. In some parts as in Bengal this is mainly from cows, but in greater parts of India, cows and buffaloes are equally used for this purpose. They supply the whole country with milk and all its products such as butter, ghi, curd, *chhana*, etc. To a limited extent, the milk of goats also is used, especially for children. (3) *Hides.*—India holds a partial monopoly in supplying the world's skins, and its supply of hides is also very large. The demand for these is both internal and external. (4) *Meat consumed by India.*—The demand for this, as has been pointed out above, is limited to certain classes, and even among them, limited by their means. But, in the aggregate, this demand is very large. Among ordinary people, the demand is usually for meat of goats and sheep. But among the Mussalmans, who form about seven crores in number, and the Europeans including the British troops in India, there is a great demand for beef as well. Beef is also much cheaper than mutton. (5). *Dung* is widely used as fuel, and, to a more limited extent, as manure. Its use in the latter capacity needs wide extension which, however, is a question wholly of cheap fuel for the rural population.

Now it is evident that the supply to meet the demands for (1) (2), and (5) above is joint supply. The cost of keeping up cattle must be covered by the demand for their services, milk, and dung. As the price of dung is very low, the price of the other two must necessarily

be comparatively high. If there be any deterioration in quality, this latter will rise higher in comparison with the cost of maintaining cattle. The same result will accrue if the cost goes up without a corresponding increase in the price or improvement in quality of cattle fetching better prices.

*Secondly*, the supply of (3) hides and (4) meat would normally be joint supply. But in India, owing to the restricted use of meat, a large proportion of the total supply of hides is independent of the supply of meat, and is obtained from carcasses of dead animals. If the improvement of hides be desired, better quality of hides must be obtained from healthy and youthful animals. The price of such high class hides is much higher in the market both in and out of India than hides of worse quality. The world's supply of hides is limited, and the demand for leather goods is increasing much faster than the increase in the sources of supply. Even in India where the use of leather goods is not wide, the demand is increasing. It is, therefore, apparent that a progressively better market is opening up for hides. The profit out of this market is however limited by the demand for meat inasmuch as the cost of maintaining cattle for this purpose must be realised from the services and dung of such cattle during their life time which will be short, the price of hides, and the price of meat. In India at present little use is made of meat to supply the external markets as is done, for example, in Australia. Any such opening up of new markets for Indian meat is bound to make cattle breeding for purposes of supplying meat and hides highly profitable.

*Thirdly*, it must be realised that the supply of the services of draught cattle or milch cattle and their dung on the one hand and of meat and hides on the other is alternative supply so far as hides are not obtained from carcasses. Even in the latter case, although it is beyond human control, the source of supply of one is the negation of the source of supply of the other. In such cases the purpose of the cattle breeder will be regulated by the price of high class meat and hides on the one hand and the price of high class draught cattle or milch cattle and their dung on the other. This question is very important for the future of India. Cattle breeding needs to be developed on a scientific basis, which must be so developed by special encouragement for the benefit of the rural population, and, with regard to milk and meat supply, for that of the town population as well.

Now it is apparent that the growth of an industry is best facilitated by securing the widest and the best market for its output. By limiting the market, the price must fall and therefore discourage the industry. If slaughter of sheep were prohibited in Australia or export of cattle from Canada, the industry of stock raising will be destroyed in those countries. This explains the great discontent in Canada against the policy of the United Kingdom to restrict its import of cattle. Indeed, every country in the world attempts to develop new markets for its produce. In India, however, a large body of people seem to advocate the contrary method. By stopping either export or slaughter of cattle the alternative source of demand will almost be destroyed. Will this

improve the market for cattle breeders? If not, will this develop the industry? It is often argued that the free export and slaughter have not improved the quantity or quality of Indian cattle. Assuming that it is so, will such restriction do so or will it lead to greater deterioration of our stock? No article, which is not perennial and needs reproduction can improve with a more restricted market, and the position of cattle in this respect is exactly that of any other article which has to be produced for satisfying human wants. The consumer is rarely benefitted by hitting the producer. The latter is immediately affected, but, in the long run, the former is no less affected through adjustment of supply to the new conditions of the market.

In the case of cattle breeding, there are certain special considerations which add to the force of the foregoing arguments. To improve the quality of cattle in India it is necessary to select stud bulls and even cows of a superior quality. This means importation from outside and selection within the country. Also to increase the number it is necessary to work on a large scale. Now costly experiments with imported or specially selected bulls and cows require large capital so that the cost of failure of an experiment or death of a costly bull may not mean the death of the industry itself. Thus production on a large scale, apart from its inherent advantages, is a necessity for stock raising in India. Of course, there is a limit to the growth in the size of this industry as there is in the case of most industries. In cattle breeding the need of special attention to individual units, of cleanliness, and various other factors fixes a limit beyond which an ordinary farm cannot grow. But this limit yet leaves a very wide scope for such industries to develop in India since their present size and organisation are almost insignificant. The nearer is the size of a farm to this limit, the greater will be the economy and efficiency of its working and the less will be its chances of failure through inability to work with costly bulls and cows or other costly implements. Also there is less certainty in cattle breeding than in most other industries inasmuch as it deals with a living factor over which man has only limited control. Allowance must, therefore, be made not only for unequal output fetching different prices for the same cost, but also for death by, say, epidemic or other causes. Thus the risk is greater than in ordinary industries. All these make the industry a special one which can succeed only with comparatively high profit per unit of output. Therefore, the price must be higher in proportion to the cost of production than in ordinary industries. Further, however much man may try, standardisation cannot be carried to the same length in this industry as in others. Thus, the cattle breeder must work on a large scale, must have a comparatively high price, and must cover his risk of loss through greater uncertainty.

At the same time competitive production requires to be assured in the interests of the consumers and, ultimately, in the interests of the industry itself. Thus only can there be a rapid increase in the number and quality of the cattle bred in the farms, and thus only can the price of cattle be kept down as low as possible. In the beginning the Indian market is not likely to offer as good chances as it would later on. The

reason is the poverty of the people who would not venture easily to work with better cattle before their increased value is fully brought home to them. This is a matter of time. Thus, cattle breeding in India cannot develop without a good market from the beginning, and Indian market in the beginning cannot be so very good owing to its shyness towards innovations and its poverty. Even looking to the distant future the widest market is the best stimulus to cattle breeders. Even if the export be not substantial, the fact of its being open and of the possibility of its development is sufficient to exercise a healthy influence on the industry itself. Therefore, any limitation of the market has its dangers whether it is by preventing the slaughter of cattle and thereby choking the demand along a particular line or whether it is by prohibiting export and thereby cutting off the external market. The fullest advantage both of the producers and of the consumers can be obtained only by keeping the market open and allowing free play to the forces of competition in the alternative forms of demand, *viz.*, draught and milch cattle and their dung against meat and hides.

Coming now to look into the facts with regard to cattle in India we find that the number of cattle is not so deplorable as it is usually assumed to be, although the situation is far from satisfactory. From Table I which gives the figures for British India and the United Kingdom it will be seen that the number of agricultural draught animals and cattle

Table I.

1919.	Population (millions).		Agricultural animals and cattle (millions).			Agricultural animals and cattle per cent. of		Agricultural draught animals per cent. of agricultural population.		Milch cattle per cent. of total population.		Total cultivated area in millions of acres.		Number of agricultural animals per 100 persons of cultivated area.	
	Total.	Agricultural.	Draught animals.	Milch cattle.	Total †	Total population.	Agricultural population.								
British India ...	247	178	55	51	149	60	80	30	21	222½	2½				
United Kingdom...	47	28	*2	†½	14½	31	51½	71	18	20½	9				

\* Horses used in agriculture. | † Calculated. | ‡ Including young stock.

including young stock is 31 per 100 persons in the United Kingdom and 60 in British India. This is usually the comparison which is shown in some publications aiming at proving India's favourable position. But apparently this is very misleading when we remember that such animals, especially the draught animals are almost wholly used for agricultural purposes in the United Kingdom, but in India they are widely used for purposes of transport, and that the proportion of the agricultural to total population is 72 per cent. in India and 6 in the United Kingdom. Thus, the proportion of agricultural animals and cattle to the total agricultural population

is 80 per cent. in India and 520 in the United Kingdom, or six and half times that of India. Similarly if we take draught animals the corresponding figures are 30 for India and 71 for the United Kingdom. Here the position of India is much worse than is revealed by the figures, for the use of draught animals for ordinary conveyance is much more extensive in India than in the United Kingdom. In India this is practically the only means of conveyance in rural areas. In the United Kingdom this is so to a much less extent, other means of transportation having been so well developed. On the other hand it must be said that the use of cattle for meat is proportionately much greater in the United Kingdom than in India. However, this affects little the position of draught animals in the United Kingdom, which are horses and little used as meat. As against the use of cattle for meat in the United Kingdom, it should be remembered that the United Kingdom does not depend for its meat supply on home cattle only. There is a large import of meat, especially from Australia. The total import is about £175 millions or £4 per head of the total population per annum. The Indian import is almost insignificant and is consumed mainly by the resident European population. The Indian import of canned and bottled provisions—which include other provisions than meat—is only £40,000.

Again, the percentage of milch cattle to the total population is 21 in British India and 16 in the United Kingdom. The position of India seems to be better. But it is to be noted that the yield of milk per cow in India is less than one-third of that in the United Kingdom, also the period of lactation is less in India, just as the dry period is longer; as against this the cost of maintenance is also less in India. Besides, there is a large import of milk and its products or substitutes into the United Kingdom from Canada, Denmark, Switzerland, Norway and Holland. The total import of butter, cheese, lard, margarine, and condensed milk is £68 millions per annum or about £2½ per head of the total population per annum. The Indian import is only £19,000, consumed mostly by a few rich people.

The percentage proportion of the number of draught animals used in agriculture to the total cultivated area in acres is 25 in British India and 9 in the United Kingdom. The position of India in this respect is much better than in any of the above comparisons, although it is not so good as the figures would seem to indicate. Because, in the United Kingdom, horses are used in agriculture, which are better suited for, and can do quicker and better work than bullocks in agriculture. Also, up-to-date implements and machinery are used in the United Kingdom, while India works with an age-old primitive system. Yet it should be said that the position of India in respect of its number of draught animals available for agriculture is better than what is usually represented, even when we make proper allowance for the wider use of them in ordinary conveyance than in the United Kingdom. In this connection Table II showing the numbers of persons, cattle, and sheep per one hundred acres of total area will be of interest; this compares British India with some of the European countries only. In the number of

Table II.

Per one hundred acres of total area.

Countries.	Persons.	Cattle.	Sheep.
British India	33	20	7.5†
Austria*	39	12.4	3.3
Belgium	104	25	—
Denmark	28.5	26	5.4
England	105	16.3	12.7
France	30	5.6	9.5
Germany*	49	16.3	4
Holland	75	26	10.5
Hungary*	26	7.7	8
Ireland	21.6	24	17.7
Italy	49	9	16
Scotland	25	6.1	37
Switzerland	38	11.6	1.6
Wales	43	16.5	78

\* Pre-war figures.

† Including goats.

cattle India's position is fifth, while in density of population it is very much less. This makes the position of India comparatively better, as also the fact that only one-third of the total area of India is under actual cultivation; the proportion is very much higher in most of the countries mentioned in the above table. As against these we should set the fact that the proportion of population dependent on agriculture differs considerably, being about three-fourths of the total in the case of India.

If we take the case of India alone and look to its position during the last twenty years or so, we find that the picture is certainly not so dark as it is sometimes depicted. Usually it is said that export of cattle should be stopped to retain sufficient cattle for home use. But the cry is born of ignorance of facts. The normal export of cattle from India is less than 2 per 10,000 heads of cattle, that is, 0.02 per cent. It may be said that, although the number is small, yet some of the best cattle are thus exported. If it be so, it should be considered whether such cattle would be raised at all if their export were stopped. The chance of their use within the country will not be increased by stopping their export, thereby stopping their raising, but by popularising them by experimental use in India and proving that their extended use will be economic in the long run. The case of sheep and goats is similar, although their export is more extensive than that of cattle. The normal export is 34 per 10,000 heads, that is, 0.34 per cent. Certainly the amount is not such as to create alarm even if stoppage of export were an effective remedy. In this connection it will be interesting to compare the export of cattle from India with that from Ireland whose position in this respect is very much allied to that of India. Table III shows pre-war figures which

Table III.

	1914.	Total cattle. (000).	Number exported (000).	Percentage of export to total.
British India .. ..	..	143,200	32	0.02
Ireland .. ..	..	5,000	945	19.0

*N.B.*—The post-war cattle export of India has considerably diminished. have been taken to avoid the effects of Irish political complications of recent years. In 1914 India exported 0.02 per cent. of its total cattle, whereas Ireland exported 19 per cent.

Nor has the increase in the number of cattle in India been very unsatisfactory. I do not mean to say that the total number is adequate, but the increase is assuring as will be seen from Table IV. The increase in

Table IV.

In millions.	1900.	1910.	1920.	Percentage 1910 on 1900.	Increase of 1920 on 1910.
Total population ..	232	244	247	5	1
Agricultural population ..	151	169	178	12	5
Total livestock ..	137	174	209	27	20
Bovine (including buffaloes)	87	119	149	37	25
Ovine (sheep and goats) ..	47	52	56	11	7

total population from 1900 to 1910 and from 1910 to 1920 has been 5 and 1 per cent. respectively. The corresponding figures of increase in agricultural population is 12 and 5. At the same time the increase in total livestock has been 27 and 20 per cent., in cattle it has been 37 and 25 per cent., and in sheep and goats, 11 and 7 per cent. Therefore, the increase in cattle is much greater than the increase in agricultural population, and very much more than that in the total population. As the number of cattle or draught animals per head of population is less than one and as the proportion of draught animals to total cattle remains practically the same, a more rapid increase in cattle than in agricultural population means a proportionately greater increase in the number of cattle per head of agricultural population. Thus, India is gaining and not, as it is often stated, losing ground in respect of its supply of cattle or draught animals. Not that the conditions as they exist are satisfactory but that the movement is in the right direction, as it is not in so many other directions, and requires to be accelerated. Any attempt to lower prices by reducing the market by prohibiting either export or slaughter is almost sure to retard this progress. Means should be devised to encourage immediately and remotely the industry of stock raising in India.

At the same time provision should be made for keeping up the improved quality of cattle when these have spread widely in India as also for improving the existing stock within the country. For



this purpose, pasture lands should be provided, and proper care taken to develop such lands. The present tendency is unfortunately against this. Common pasture lands in and near villages are being steadily and rapidly converted into cultivated lands. This short-sighted policy, pursued practically throughout India, has its inevitable reaction on the quality of cattle as also ultimately on their number. It will be seen from Table V that, in ten years, the increase in the net cropped

Table V.

Complete figures are available only since 1907-08.

	In thousands of acres.		
	1908-09.	1913-14.	1917-18.*
Area under forest ..	82,489	82,623	86,925
Area not available for cultivation ..	157,639	147,169	142,783
Cultivable waste other than fallow ..	113,066	115,587	111,485
Fallow land ..	5,153	52,620	48,466
Net area cropped ..	218,040	219,192	227,848

area is less than 5 per cent. But the area not available for cultivation and culturable waste other than fallow has decreased. The latter is rather uncertain in its movements, and its decrease is also small. The former has decreased by about 10 per cent. (about 15 million acres). This area should usually increase with the growth of population and the need of habitable accommodation. The increase in the net cropped area (about 10 millions) is not explained by the decrease in fallow land (1·7 millions) and in culturable waste other than fallow (1·5 millions). At the same time the area under forest has increased (4·5 millions). During the same period the total area by professional survey decreased by about three million acres. Thus, some of the area not available for cultivation has been converted into cultivated area and forest. The portion of the former, which can be conveniently transferred in that way, is the pasture lands which are more fertile than other parts of it, and therefore can be converted either for cultivation or forestry. This confirms the impression of those who have travelled widely in villages, and seen the complete disappearance in some and great reduction in most localities, of the common pasture lands for the cattle of rural India.

As against this it must be noted that there has been a substantial increase in the quantity of fodder crops. From Table VI it will be seen

Table VI.

	In thousands of acres.		
	1907-08.	1913-14.	1917-18.
Lands growing fodder crops in India ..	4,908	5,910	8,194

\* 1917-18 is taken because 1918-19 was a famine year, and 1919-20 and 1920-21 were also abnormal.

that more cultivated lands are producing fodder crops, the area having increased by 67 per cent. during the ten years for which complete figures are available. Of course, fodder is obtained from various other sources, for example, gardens and orchards, fallow land, by-products of substantial crops, etc. Yet the need for pasture lands is not less for the healthy growth of cattle, and measures should be systematically taken to provide for such lands where they do not exist and to increase them where they are insufficient, because the health of cattle will improve by open air grazing and by fresh food on the pasture lands as also by the regular exercise which they will receive in grazing on such lands.

To conclude then, it appears that India should give attention to the improvement of the quality of its cattle first and to the increase of their number next. To achieve both it is vital that not only the market, home and foreign, for services, meat, and hides should be kept open, but that it should be extended by all means in every direction in order to encourage rapid development of the industry of stock raising. By this means alone can the quantity of cattle be increased, their quality improved, and their prices kept low. In order to keep up the quality when improved cattle will be used in India, as also to support a larger number, pasture lands should be provided in all convenient localities, and fodder crops raised only as a competitive crop. If the value of India's cattle increase, higher prices will be paid for fodder, and it will be raised in competition with other crops. The value of cattle can be increased not only by improving the quality but also by finding new use for them. In this respect the use of dung as an excellent manure needs to be made widely known; but this is more or less a question of providing cheap fuel to India's rural population. Finally, the situation, especially as to the number of cattle and their increase, is not desperate as some people imagine. The progress is going on in the right direction. What is necessary is to accelerate the pace of progress, and organise the industry of stock raising on purely business principles. In this attempt, the Government of the country will have to play an important, perhaps a leading part, although not in the direction which the advocates of prohibiting slaughter and export recommend.

### DISCUSSION ON MR. PRAPHULLACHANDRA BASU'S PAPER.

MR. CALVERT said he desired to compliment the writer on the way in which he had handled a difficult subject, and said that he agreed with most that the paper contained. The one thing they must realise was that there were too many cattle in India. In any country the tendency was for the number of cattle to increase up to the limits of the food supply and the one method of improvement was to eliminate the surplus cattle. Otherwise they were sure to deteriorate in quality through want of sufficient food to supply them all. He referred to the part played by religion in the matter of the elimination of cattle in India, and said that in this respect there must be a change of sentiment if they wanted to improve the breed. He next objected to the system of the common grazing grounds. This, he said, led to the mixture of good cattle with the bad and led to a deterioration of the general breed. The use of private grazing grounds is essential. In conclusion he said that so far as cattle were concerned the great difference between India and Europe was that in the latter they venerated the cow as a species whereas in the former people venerated the cow as an individual. He pointed out that in places where Mohammadians preponderated the cattle were generally of a good breed because the useless and surplus cattle were eliminated and there was sufficient pasture for the rest.

4-15 P.M.—Members attended an "At Home" given by Sir John and Lady Maynard at their residence in Lawrence Road.

FOURTH DAY :—FRIDAY, JANUARY 19th, MORNING SESSION.

### NECESSITY CESSATION ZONE AND ITS SIGNIFICANCE IN THE THEORY OF VALUE.

By B. G. BHATNAGAR, ESQUIRE, M.A., F.S.S., LECTURER IN ECONOMICS,  
UNIVERSITY OF ALLAHABAD.

According to leading economists a commodity is said to have inelastic demand if a fall or rise in price causes very little or inappreciable change in the quantity that can be sold. I should not be very far from the truth if I were to say that as the term demand is always thought of with reference to a market, which according to the late Professor W. S. Jevons, is best defined as a group of buyers in active and uniform competition with each other, so the term inelastic demand should also always be understood with reference to one and the same set of persons, in active and uniform competition with each other. To this preliminary qualification we may add one more and say that the conception of elasticity or inelasticity of demand should not be interpreted in that narrow way which has been adopted by Dr. Marshall, while defining elasticity in these terms. "The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price." Although this definition is in perfect accord with the generally accepted definition of the term *demand*, yet it seems to be more desirable to extend the idea of *elasticity* from the changes in quantity demanded due to the changes in price to the changes in demand prices due to the changes in quantity offered for sale also. This is necessary because it is only when we extend our conception of elasticity in this way that it becomes more or less approximate to the actual facts of life. This fact has been very well recognised by modern economists in the drawing up of demand schedules, and by Dr. Marshall in his definition of the *Law of Demand*. Here *demand* is interpreted not in its narrower sense where it only means quantity that finds sale at a certain price in a market but in its wider sense where it also includes the price that buyers will offer for a certain quantity. It is the only correct way of looking at demand, because there are two ways open to the suppliers to influence the market. Either the suppliers may increase or decrease the quantity offered for sale, and we may be asked to notice the change in the demand price, or the suppliers may increase or decrease the price per unit of a commodity, and we may be asked to notice the change in the quantity that will be sold; and it is for the demand side to notice changes in both the cases.

#### THE NECESSITY CESSATION ZONE.

Conception of inelastic demand extended in this way, though largely true, is yet incomplete because it loses sight of a very important point that came to me last year when I was taking the M. A. previous class. For every commodity for which demand is inelastic there seems to exist a maximum quantity and a minimum quantity which is essential for the consumption of a given set of people. The difference between the maximum and the minimum necessary for the given population is very little and is inappreciable for perfectly inelastic demand commo-

dities. If we had a commodity for which demand was perfectly inelastic then the points of maximum and minimum demand would coincide, but as a general rule we have not got any such commodities, and the difference between elastic demand commodities and inelastic demand commodities is only of degree, and for most inelastic commodities we can say that the distance between maximum demand point and minimum demand point is very little. If we agree to call this distance between the two points as the necessity cessation zone, then we would find that changes in the price and quantity are sudden above and below the NECESSITY CESSATION ZONE, and are not very marked within it.

Let us suppose that people in the city of Allahabad which we may take, for the sake of argument, to be isolated, requires 10 maunds of salt per month at the maximum and 5 maunds at the minimum. Now let us take the case where supply is less than the NECESSITY CESSATION ZONE, and study the behaviour of the price.

## SALT.

Quantity offered for sale.				Price per seer.	
				As.	
8 maunds	..	..		10	
8½	"	..		9½	
9	"	..		9½	NECESSITY CESSATION ZONE.
10	"	..		9½	
11	"	..		8½	
12	"	..		7	
13	"	..		5	

So long as the quantity increases up to the Necessity Cessation Zone the fall in price is very little, but beyond that Zone the fall becomes rapid and ultimately precipitate. This is well illustrated by the graph A.

Taking the opposite case where the quantity begins to decrease from above the Zone downwards, we should find something as below—

## SALT.

Quantity offered for sale.				Demand price per seer.	
				As.	
14 maunds	..	..		3	
13	"	..		3½	
12	"	..		3½	NECESSITY CESSATION ZONE.
11	"	..		4	
10	"	..		4½	
9	"	..		6	
8	"	..		8	
7	"	..		11	

Here also we notice that so long as the quantity offered for sale is above the Zone, rise in price is not violent or sudden, but when it begins to fall below the Zone, the rise in price becomes very much marked. This is very well illustrated by the graph B.

We may now begin the other way where the seller induces change in the price, and start from a state of affairs where the price of salt stands very high and then begins to decrease. Under these circumstances we may expect some such movement as follows :—

## SALT.

Price per seer.	Quantity sold.
12 annas .. ..	8 maunds
11 " .. ..	9 "
10 $\frac{1}{2}$ " .. ..	10 "
10 " .. ..	11 "
9 " .. ..	11 $\frac{1}{2}$ "
8 " .. ..	11 $\frac{1}{4}$ "
7 " .. ..	11 "

Here the changes in the quantity sold produced by change in price are different, and we find a fairly rapid rise in the quantity sold up to the higher limit of the Zone as price goes on falling but a very inappreciable change above that. This is illustrated by the graph C.

Taking the other case where price begins to rise from a low point we would expect some such movement as follows :—

## SALT.

Price per seer.	Quantity sold.
6 annas .. ..	12 maunds.
6 $\frac{1}{4}$ " .. ..	11 "
6 $\frac{1}{2}$ " .. ..	10 $\frac{1}{2}$ "
7 " .. ..	10 $\frac{3}{4}$ "
8 " .. ..	10 "
9 " .. ..	9 $\frac{3}{4}$ "
10 " .. ..	9 $\frac{3}{8}$ "
11 " .. ..	9 $\frac{1}{2}$ "
12 " .. ..	9 $\frac{1}{4}$ "
13 " .. ..	9 $\frac{1}{8}$ "

Here the decrease in the quantity up to the first line of the Zone is fairly marked, but beyond that it goes on getting less and less marked. This is illustrated by the graph D.

The usual graph and schedule do not bring out all these peculiarities of the inelastic demand, as no account is taken of the **NECESSITY CESSATION ZONE**. However I believe that if the above method of exposition of inelastic demand were adopted then it would throw much light on the modern theory of value, and help us a great deal in explaining many an important case of the determination of ratios of exchange in the market. Thus at present we only recognise that if the demand for a commodity is inelastic a rise or fall in price influences the quantity to be sold very little. But this is not the whole truth: Recognition of the existence of **NECESSITY CESSATION ZONE** would tell us many things more. To begin with it would help us in finding out the true behaviour of rise and fall of prices, when the quantities offered for sale are below or above or within the Zone. It would tell us that they would be different for the three cases. It would further help us in understanding more accurately the behaviour of quantities demanded at different prices asked by the sellers, as these prices happen to be demanded for quantities above or within or below the **NECESSITY CESSATION ZONE** for a certain commodity.

## DISCUSSION ON MR. BHATNAGAR'S PAPER.

MR. BHATNAGAR supplemented his paper and said that by the "necessity cessation zone" he meant that for every commodity there existed a maximum quantity and a minimum quantity which was essential for consumption of a given set of people and this difference he called "the necessity cessation zone." He then explained by means of graphs that in the case of salt so long as the quantity increased up to the necessity cessation zone the fall in prices was very little and that beyond that zone the fall became rapid. He also explained the relative rise in prices when the quantity offered for sale was above or below this zone.

MR. JEVONS in welcoming this paper as treating of a very important branch of Economics regretted that the subject was not more fully put before them. He pointed out that the figures given in the paper were of a deductive nature and based perhaps on introspection and not on statistical evidence. He recognised the difficulty of obtaining statistical evidence but said that in the case of salt the necessary data were obtainable as the Government controlled the whole supply. He said that he considered that the shape of the demand curve given by Mr. Bhatnagar was correct for the salt which was consumed by people, omitting what was used for cattle and for industries. In conclusion he desired the reader of the paper to collect more reliable figures from statistics and make his investigations as to how the demand curve really ran.

MR. MYLES said that after hearing the explanation given by Mr. Bhatnagar he did not think that much had been added to Marshall's treatment of Demand and Elasticity of Demand. He considered that it would lead to great confusion to extend the term "Elasticity of Demand" as was suggested by the writer, and in support of this view compared the definitions of the Law of Demand as given by Marshall and by Chapman. The former he considered the better in that it did not introduce the quantity offered for sale. He also felt that Mr. Bhatnagar had not sufficiently distinguished between changes of demand under statical conditions, *i. e.*, in response to changes in price, and changes of demand under dynamical conditions, *i. e.*, when the circumstances affecting the demand had changed. He concluded by saying that if the figures given had been the actual figures, the results would have been most interesting.

MR. BHATNAGAR in reply to the criticisms said that his paper was worked out on a deductive basis and that he could not get at actual figures. He knew the paper was not perfect. He brought it before the Association only that he might derive inspiration and that he might benefit by the suggestions that would be made at the Conference. He promised to try to obtain actual statistics and work out the results. In conclusion he thanked the members for the very valuable criticisms and suggestions.





## THE INDIAN CHAMAR.

By B. L. VAJPAYEE BHIMPURE, M.A., PROFESSOR OF ECONOMICS,  
VICTORIA COLLEGE, LASHKAR, GWALIOR. C. I.

In a small low-roofed kuchicha house almost always single-storeyed, containing one room in the majority of cases, and sometimes two rooms, there lives the Chamar—the shoemaker of India, with his family consisting usually of himself, his wife, and two or three children and in a few cases the old parents.

His house is much cleaner than he and the members of his family. His usual and hereditary industry is the making of shoes of the Indian type. From time to time he has also to supply labour in Begar. He has to carry the dead bodies of cow, ox, buffalo and such other animals for which he receives an anna or two besides the hide which he cures himself and uses for the soles in his industry. He is usually immobile and as a conservative sticks to his own ancestral industry. His standard of living is ridiculously low. He takes his food twice a day but often half meals. Juar or bajra, pulses, salt, turmeric and pepper and sometimes some cheap vegetable form his food. It is only on ceremonial occasions that he tastes ghee, gur and oil. The fuel for cooking his food is usually supplied to him by his young ones who collect cow and horse dung and pieces of dry sticks and grass in the streets. A worn-out and dirty kurta and equally dirty sara and dhoti form his dress. He does not take his bath daily for want of clothes. His children wash their faces perhaps once a fortnight and are very dirty to look at. The surroundings of his house are very unhealthy. He has no power of seeing into the future perhaps because he is illiterate, does not know the benefits of thrift and possibly because he has never been told these things. He is in the majority of cases a drunkard. The females help him a deal but his children are all vagabonds and good for nothing. The grown-up boys take to the repair of shoes in the streets and sometimes to the doing of other unskilled works such as the carrying of stones and other heavy things.

### *His Industry.*

Shoes of the old Indian type which the Chamar makes usually require raw hides (*charsa*) of buffaloes for the purpose of making the soles. The skins of sheep and goat are used for the uppers. The price of the buffalo *charsa* in Lashkar, where I have conducted an economic survey into the life of some eighty Chamars living a corporate life in a group of twenty-nine houses, is from four to six rupees and that of the skins six annas to two rupees. He colors the *charsas*, oils them, and after washing them finally uses them in his industry. From the two prepared *charsas* he then cuts the soles and the uppers. Women then take up the uppers and adorn them with imitation lace called *kalabattoo*. The uppers are then lined by the females. The males prepare the heels and press the soles,

The soles, the heels and the uppers are then sewn together sometimes with leather and often with twined threads which is usually run over with wax. One pair of shoes is usually prepared in one day of some 10 hours. He works from morn till eve but never at night except when the demand for shoes during marriage days is very great. He prepares only two kinds of shoes (i) plain and (ii) ornamented. The former are more durable. He often puts in riff-raff into the soles of the ornamented shoes.

The various instruments required for his industry are (i) *sumat* for driving thread or nails inside, (ii) *rampu* for levelling and softening the surface of the soles, (iii) *raupi* for cutting the leather and (iv) *majhola* and (v) *katanni* for sewing; besides a slab of stone, and a small long piece of wood for sharpening the instruments and helping the process of sewing respectively. He makes use of no machinery whatsoever. (A few Chamars have however taken to the preparation of shoes and boots of the western type, in the making of which they certainly do use some simple machines).

From one *charsa* he gets material for six pairs and the cost of thread and lace is two to four annas. Approximately therefore the cost of production excluding the wages of a Chamar is Rs. 1-1-0 and a pair is sold these days for two rupees. He thus earns twelve annas per diem which for a family of five and an indebtedness of about 60 rupees is quite insufficient.

#### *His socio-economic condition.*

He is Hindu by religion. He remembers Ram before beginning his work and before taking his food. He also worships the sun. In or about his house there is sometimes a very small so-called temple of a Hindu deity. The marriages and other ceremonies are all performed after the Hindu style. Some of the Chamars worship on Thursdays the Mohammedan Sayyad Wali always kept in a niche. Most of them perform the worship of Satya Narayan on which occasion many of the caste-fellows are sumptuously fed. Except on ceremonial and religious occasions feasts are not held because the majority of them has to borrow to perform these feasts. Most of them take their food often on the dirty stone required in shoe-making. He is quite ignorant of the laws of sanitation and hygiene. He does not perhaps know what recreation and leisure mean. Temperate doses of wine on some days might therefore justifiably be allowed to him as affording him relief from his exhaustion and making him forget his otherwise undesirable, pitiable and even lamentable lot.

Early marriages are performed as a rule. There is no widow marriage among them although a widow can live as a wife with any man of the same caste. This is known as *Natra* or *Dharicha*. In my recent survey I came across a four years old wife.

He has no other capital with him except the house which is often owned and possessed by the occupant, the simple implements required in his trade, some silver ornaments of the value of twenty to thirty

rupees, one or two brass utensils and sometimes a pair or two of ready made shoes. In times of emergency he has always to look to the Bania.

The winter days are perhaps the worst for him because in a very small room the whole family has to lie down in the midst of things dirty and offensive. He has almost nothing to cover his body with except a patch-work of worn-out and cast-off clothes.

### *Horizontal and vertical mobility.*

The ties of conservatism are getting loose and a Chamar is now seen working as a porter (Hammal), driver, builder, sculptor, contractor, cloth-merchant, etc., but never as a confectioner.

The recent fall in the price of necessities of life has certainly benefited him for his wages which do not fluctuate so quickly as prices do have not fallen in consequence of the fall in prices. His real wages have thus increased. But his improvident, spendthrift and drinking habits cannot allow him to make a proper use of this unearned increment.

### *His Panchayat.*

Every Chamar is by virtue of his caste a member of the Panchayat. The Panch are however elected. The system of election though rudimentary and imperfect is yet followed in principle. An elected Panch works as such for his life. He can however be disqualified but for very serious breaches of the laws of morality. He does not go to the court except for cases which do not come under the jurisdiction of the Panchayat. It is not the nature of the case nor the nature of the plaintiff but the wish of the plaintiff and the defendant that determines the jurisdiction of the Panchayat. Suits of civil, criminal and religious nature are all tried by the Panchayat. The award of the Panch which is arrived at after long and free discussion in which all the members take part (females are not eligible for membership) is final. There is no appeal from it. The award takes the form of (i) fine of a few annas or rupees according to the status of the defaulter or (ii) *Hukkapani Band* which is ex-communication of the defaulter from smoking from the same *hukka* and joining the caste-dinner. If the amount of the fine is substantial a part is utilised in giving a feast to the caste people and a small part goes to charity. If the amount is small sweets and charity are the rule.

Some of the Chamars have, under the aegis of their Panchayat, begun to sign a bond on affidavit, promising not to take wine at all. This is often broken after a period of four or five months. Yet this is an auspicious beginning.

Some rich Chamars have also begun to dedicate and set apart a small yet commodious house for the use of their caste-fellows.

### *Suggestions to better his lot.*

Legislation is not likely to change his lot for the better. Co-operation and education are the only two things to solve the problem of

Chamars in particular and that of labourers in general. Co-operation does not in his case mean the establishment of a credit bank or purchaser's stores. He has simply to be advised to purchase together with others his tobacco over which he spends half an anna per day, the thread, *kabalattoo*, and *charsus* for his industry. This will give him the profits of wholesale purchasing.

In order to bring him on to the habit of thrift a small box might be supplied him and he might be advised and brought round to decide to lay by unto that box one anna from the sale price of every pair. It has often been seen that he drinks away the whole of the producer's surplus. To wean him from the evil habit of drinking, early marriages, insanitary and ugly ways of living and also to increase his efficiency and raise his standard of living the intelligentsia should create opportunities of mixing with him frequently and should relate to him stories from the Ramayana to enlighten him and make him feel that he is one of us and with us. He cannot and should not be left behind in the economic advancement of India. It should also be the purpose of such visits to tell him the ways of living clean and decent and the advantages thereof. For example, it has been found that the children of the Chamar often wash their hands with the water with which the *charsa* has been cured. The nails, the eyes, the teeth of the children are dangerously dirty. I announced to the 33 children of the Chamarghar of 29 houses that I would distribute sweets on a certain day only to such children as would be found keeping their faces, eyes and teeth clean. To my astonishment I found that on that day 30 children were all ready to receive the sweets with their clean hands, nails, teeth, etc. This shows that the Chamars are living in ignorance and stand in need of an informing impetus.

Like all other labourers they have no regard for their word. Along with the starting of Insurance Funds I should like to suggest the starting of a Damages Fund for every corporate group of labourers. The Chamar, for example, takes an anna or two as earnest money and promises to supply the shoes at a fixed hour on a fixed day. But like most commercial and industrial dealers he often fails to keep his word although he knows that his brother who is true to his word has been prospering very quickly. The Damages Fund is to be under the supervision of the Panchayat and every producer who fails to supply the commodity at the promised hour should be required to contribute a small fine. The amount thus collected may be awarded as a prize to those that are true to their word or be returned in a larger proportion to such of the defaulters as have corrected themselves. This is likely to raise the commercial morality and consequently the goodwill of the producers in general.

Agents of Labor Bureaus should try to inform the Chamar and other labourers of the existence of factories in and about their places, the nature of the work done there, the rate of wages obtainable there and the opportunity and environment advantages.

## DISCUSSION ON MR. VAJPAYEE BHIMPURE'S PAPER.

Mr. Bhimpure read his paper.

Mr. KUMARASWAMI wanted to know how the Chamar can be brought to the habit of laying by some money as Mr. Bhimpure suggested when in another part the writer said that the Chamar "earns twelve annas per diem which for a family of five and an indebtedness of about Rs. 60 is quite insufficient." As regards co-operation he explained that the attempt made in this direction in the Madras Presidency proved a failure due probably to the conservative habits of the Chamars. Referring to a Damage Fund he said it would not work properly as it was not possible to weld all the Chamars together even for ordinary production on a large scale, and this fund would act adversely on the ability of subsistence.

Mr. KALE said that the remedies suggested to improve the condition of the Chamars and the difficulties to be encountered in connection therewith went to show that it was not possible to reconstruct on the old corporate tendencies of the people about which so much was talked by Mr. Mookerji two days ago. He also pointed out that the difficulties mentioned in this paper as regard to the amelioration of the conditions of the Chamars were common difficulties experienced in the case of almost all handicraftsmen and that what applied to Chamars applied also to weavers and other classes of workers. Their outlook was narrow and unless this was widened there was no prospect of improving their lot. He said that a change should come in the social system. In regard to starting co-operative societies for these people he agreed with Mr. Kumaraswami in saying that they would not serve the purpose as they cannot work as members of a corporate society. He suggested that the one way of improving them socially, morally and economically was to divert them to new industries.

SARDAR PRITAM SINGH pointed out that any sudden change in the standard of living of these people by diverting them to other industries would affect them adversely and suggested for the consideration of the Conference a middle course, namely, that of distributing power in a manner that might reach the homes of these people who worked in cottages, and thus slowly bring about industrialism.

Mr. SODHNAS said that no difference was made socially among the Brahman Sikhs against the Chamar and that all who were baptised in Sikhism were socially equals. He also said that the Chamars of his religion worked in the same manner as zamindars and were earning their incomes in a decent manner. He concluded that the solution of the difficulties raised in the paper consisted in raising the social standard of life of this class of people.

Chamars in particular and that of labourers in general. Co-operation does not in his case mean the establishment of a credit bank or purchaser's stores. He has simply to be advised to purchase together with others his tobacco over which he spends half an anna per day, the thread, *kalabattoo*, and *charsas* for his industry. This will give him the profits of wholesale purchasing.

In order to bring him on to the habit of thrift a small box might be supplied him and he might be advised and brought round to decide to lay by unto that box one anna from the sale price of every pair. It has often been seen that he drinks away the whole of the producer's surplus. To wean him from the evil habit of drinking, early marriages, insanitary and ugly ways of living and also to increase his efficiency and raise his standard of living the intelligentsia should create opportunities of mixing with him frequently and should relate to him stories from the Ramayana to enlighten him and make him feel that he is one of us and with us. He cannot and should not be left behind in the economic advancement of India. It should also be the purpose of such visits to tell him the ways of living clean and decent and the advantages thereof. For example, it has been found that the children of the Chamar often wash their hands with the water with which the *charsa* has been cured. The nails, the eyes, the teeth of the children are dangerously dirty. I announced to the 33 children of the Chamarghar of 29 houses that I would distribute sweets on a certain day only to such children as would be found keeping their faces, eyes and teeth clean. To my astonishment I found that on that day 30 children were all ready to receive the sweets with their clean hands, nails, teeth, etc. This shows that the Chamars are living in ignorance and stand in need of an informing impetus.

Like all other labourers they have no regard for their word. Along with the starting of Insurance Funds I should like to suggest the starting of a Damages Fund for every corporate group of labourers. The Chamar, for example, takes an anna or two as earnest money and promises to supply the shoes at a fixed hour on a fixed day. But like most commercial and industrial dealers he often fails to keep his word although he knows that his brother who is true to his word has been prospering very quickly. The Damages Fund is to be under the supervision of the Panchayat and every producer who fails to supply the commodity at the promised hour should be required to contribute a small fine. The amount thus collected may be awarded as a prize to those that are true to their word or be returned in a larger proportion to such of the defaulters as have corrected themselves. This is likely to raise the commercial morality and consequently the goodwill of the producers in general.

Agents of Labor Bureaus should try to inform the Chamar and other laborers of the existence of factories in and about their places, the nature of the work done there, the rate of wages obtainable there and the opportunity and environment advantages.

## DISCUSSION ON MR. VAJPAYEE BHIMPURE'S PAPER.

Mr. Bhimpure read his paper.

MR. KUMARASWAMI wanted to know how the Chamar can be brought to the habit of laying by some money as Mr. Bhimpure suggested when in another part the writer said that the Chamar "earns twelve annas per diem which for a family of five and an indebtedness of about Rs. 60 is quite insufficient." As regards co-operation he explained that the attempt made in this direction in the Madras Presidency proved a failure due probably to the conservative habits of the Chamars. Referring to a Damage Fund he said it would not work properly as it was not possible to weld all the Chamars together even for ordinary production on a large scale, and this fund would act adversely on the ability of subsistence.

MR. KALE said that the remedies suggested to improve the conditions of the Chamars and the difficulties to be encountered in connection therewith went to show that it was not possible to reconstruct on the old corporate tendencies of the people about which so much was talked by Mr. Mookerji two days ago. He also pointed out that the difficulties mentioned in this paper in regard to the amelioration of the conditions of the Chamars were common difficulties experienced in the case of almost all handicraftsmen and that what applied to Chamars applied also to weavers and other classes of workers. Their outlook was narrow and unless this was widened there was no prospect of improving their lot. He said that a change should come in the social system. In regard to starting co-operative societies for these people he agreed with Mr. Kumaraswami in saying that they would not serve the purpose as they cannot work as members of a corporate society. He suggested that the one way of improving them socially, morally and economically was to divert them to new industries.

SARDAR PRITAM SINGH pointed out that any sudden change in the standard of living of these people by diverting them to other industries would affect them adversely and suggested for the consideration of the Conference a middle course, namely, that of distributing power in a manner that might reach the homes of these people who worked in cottages, and thus slowly bring about industrialism.

MR. SODHENAS said that no difference was made socially among the Brahman Sikhs against the Chamar and that all who were baptised in Sikhism were socially equals. He also said that the Chamars of his religion worked in the same manner as zamindars and were earning their incomes in a decent manner. He concluded that the solution of the difficulties raised in the paper consisted in raising the social standard of life of this class of people.



MR. TREVASKIS said that in the Punjab co-operation was doing good work in the matter of ameliorating the condition of these classes, especially in the Hoshiarpur and Lyallpur districts. He also pointed out that as a result of the working of three Christian societies in Gujranwala the Chamars had given up the habit of drinking and gambling.

MR. VAJPAYEE BHIMPURE in reply to Mr. Kumaraswami said that the Chamars on certain occasions did earn more than what they required and were in a position to lay by something. He also explained how by persuasion he was able to make them lay by four annas a month. He then said that the object of his paper was to show that it was not possible to raise them unless they went to these people and tried to improve their lot. The Chamars, he said, were in their present position owing to ignorance and want of education and were capable of improvement if lectures were held for them on questions of cleanliness, decency, sanitation, thrift and so on.

## FACTORY LEGISLATION AND ADMINISTRATION IN THE PUNJAB.

BY W. H. ABEL, INSPECTOR OF FACTORIES, PUNJAB.

(In the absence of the writer, this paper was read by Prof. Myles.)

Legislation to protect workers in factories without unnecessarily hindering and handicapping industrialists is a question offering much scope for a diversion of opinion. The many angles of vision taken by administrators, producers and workers create endless discussions, all of which should tend for better legislation and greater efficiency.

Whilst factory legislation should for many reasons be as uniform as possible, the peculiarities of each province must be taken into consideration when framing rules which are to apply to its products.

The Punjab being purely agricultural, such industries as exist are for the convenience of agricultural developments, and except in instances where big engineering workshops have outgrown their original purpose, as in the case of Railway Workshops and such essential industries as printing and power generating, the industries of the Punjab are, generally speaking, subject to the whim of the agriculturists.

Uniform legislation is aimed at for many reasons and found on broad principles to be the most satisfactory. Labour of any particular sort is not confined to any one locality, travelling is comparatively easy, news of every kind travels in India with remarkable rapidity; therefore workers would quickly flock to industrial centres where in their opinion legislation and conditions were more favourable: this is a strong reason for aiming at uniform legislation. Another point is that big industrialists have several factories in two or three provinces often controlled from one central office; purely provincial legislation and administration would be as difficult to these factory owners, as it would be to the one administrator, who probably has three or more provinces to control. Further, markets would vary according to the efficiency or adaptability of legislation to one particular province, and industry would gradually move into that district, involving much unnecessary transport of raw material to manufacturing centres and denuding other provinces of their town population. Until recent years the States of America were individually responsible for factory legislation and it was not unusual for one State to compete against another to entice factory owners to start industries in their particular States. Regardless of health, physique and efficiency, workers in some States were allowed to be employed for 18 hours a day, working unceasingly at high pressure. Naturally health had to suffer, and eventually the State; since operatives were totally exhausted after a few weeks, and had to take complete rest. It is not surprising that such legislation, or lack of it, was quickly changed, and a legislation administered, which endeavoured to give the worker the best conditions to enable him to produce the most efficient work.

1922 was the first year that a uniform set of rules made under the Amended Factories Act (July 1922) was adopted in India. It is to

early to judge as to how far this adoption will prove a success, but the Act itself being uniform for the whole of British India, the broad principles of uniformity were always taken as the frame-work on which provincial rules were framed and they differed only slightly from each other.

As an agricultural province it is interesting to note the development of industries wholly dependent on the products of the land, helped tremendously by vast irrigation schemes. Industrial centres have sprung up in a very short space of time bringing in their train more efficient legislation. In 1914, there were 149 cotton ginning factories, 12 oil mills under the operation of the Factories Act, one oil mill and 6 flour mills employing a total of 10,247 operatives; whilst in 1921 the number had reached 212 cotton ginning factories, 3 oil mills and 11 flour mills with a total number of operatives of 15,733.

Much of the labour necessary for the increased industrial shown from provinces other than the Punjab. Possibly as much as one-third of the factory workers are from Rajputana and Central India; invariably this class of worker has little interest in agriculture as he possesses no land, whereas the Punjabi is naturally of the land and usually has a small plot of land belonging to him or to his family which keeps him interested and invites his attention during the harvesting season. Where factory work is seasonal and casual, labour is taken exclusively from the land and this forms a very convenient method for country people to earn a livelihood between the season of sowing and reaping. Cotton ginning factories are all seasonal and draw their labour from this type. Factory legislation and administration for this class of workers requires careful consideration. Firstly the workers themselves know nothing whatever about discipline, method or the dangers of machinery. Secondly a factory working for 4 to 6 months a year, is not kept up in the same efficient condition as a perennial factory; and thirdly, since these factories are situated in the country and therefore further removed from the influence of law and order, they know very little about legislation. Cotton ginning factories might almost be described as constituted of family parties—all members of a family contributing towards the daily work. Children are often found taking over their parents' duty for an hour or more while the parents are taking meals, or a whole family will congregate for their meals on a heap of cotton in the ginning room, regardless of excessive dust, or the fact that the younger members of the family may wander off amongst the dangerous gins and machinery. Legislation has done much to prohibit children from entering ginning rooms, the success of which is very marked. It would be interesting to compare any statistics possible, to show as to how far the health of the children has improved since a genuine attempt has been made to keep children out of the dusty rooms of the factories. Factory owners in Rajputana give us a lead in respect to dealing with the children belonging to their workers, which might be followed with advantage. Men and women are employed extensively on wool picking and cleaning; they come in from their villages to the factory every morning bringing with them their children and food, and remaining in the factory or compound until the

end of the day. In the larger factories a nursery is provided, usually a godown fenced off, where all children too young to work, are placed under the care of one or two women.

The godown is used as a feeding room in which all workers collect during the rest interval, getting clear of the dust and heavy atmosphere of the factory for a whole hour. Whilst this may be looked upon as a primitive method of disposing of children for the time being, it offers all sorts of possibilities, and might easily develop into something extremely useful.

Those in charge of the children might be chosen from an educated class, capable of instructing the children in cleanliness; discipline might be taught, and if a real effort were made at education it is not unlikely that District Boards could be persuaded to take an interest in these nurseries, eventually bringing them up to the style and standard of a school. Many methods of showing a keen and intelligent interest in their employees might be adopted by factory owners, examples of which go to prove that the advantages of such schemes are mutual. We have only to look up such co-operative schemes as are in existence in big industrial concerns in Europe and America, and note that invariably these industries are in a flourishing condition, to realize that there are immense possibilities for similar successful schemes in India.

Such a scheme, still in its infancy, and therefore, necessarily careful of not running before it can walk is a scheme being worked by the Birla Cotton Spinning and Weaving Mills, Delhi. This scheme although only in its second year of existence has a most promising future, and is already in a flourishing condition. With a hope that this scheme may catch the eye of industrialists in the Punjab, keen to do their best for the benefit of their workers, it is given here in detail.

**“ Scheme for Officers and Workers participating in the profits of the Birla Cotton Spinning & Weaving Mills, Ltd., Delhi.**

The following scheme for Officers and Workers participating in the profits of the Birla Cotton Spinning & Weaving Mills, Ltd., Delhi, was adopted at an Extraordinary General Meeting of shareholders held at the registered office of the Company at No. 137, Canning Street, Calcutta, on Tuesday, the 30th November 1920.

1. Ten percent. of the net profits earned by the above-named Company in every half-year left after making provisions for—

- (a) Directors' fees and commission;
- (b) Managing Agents' Commission,
- (c) Depreciation Account,
- (d) Income-tax, Super-tax or other impositions of the Government, Municipality or other public body,
- (e) or any other account that the Managing Agents may consider should be included in this group,

but before making any provision for the Reserve Fund, Distribution of Dividends and carrying over to the next half-year shall be distributed among the Officers and Workers by the Company at its Mills if they are found to have the qualifications and not be subject to the disqualifications hereinafter set forth.

2. All Officers and Workers, who were in employment on the 1st January 1920, or have been or will be employed since that date and have continuously worked at the Mills for a period of at least  $1\frac{1}{2}$  years and have continued to work at the Mills until the General Meeting sanctioning the payment under this Scheme for the relative half-year is held, shall be deemed to be entitled to the benefits of this Scheme.

Explanation (1)—The term ‘continuously’ means that the person should not have absented himself from work without the previous permission of the Head Officer in charge of the Mills.

Explanation (2)—Misconduct includes—

- (a) Fomenting Strikes,
- (b) Going on Strike,
- (c) Disobedience of Superiors’ orders,
- (d) Continued short or bad production,
- (e) Creating disturbance with a fellow-worker,
- (f) Any act of commission or omission tending to injure the interests of the Company or the aiding or the abetting thereof or entering into any conspiracy therefor.

Explanation (3)—The certificate of the Managing Agents or their authorised representative shall be deemed to be conclusive as regards the qualification or disqualification of any person.

3. A declaration of the Managing Agents or their authorised representative as to the amount divisible under clause (1) hereof shall be deemed to be conclusive and no Officer or Worker shall be entitled to challenge the correctness thereof or to have inspection of any books, accounts, vouchers or other papers whatsoever or to have any explanation whatsoever.

4. The sum of money declared under clause (3) hereof shall be divided among the Officers and Workers qualified under clause (2) hereof in proportion to the number of coupons held by them respectively. The first payment shall be made in respect of the half-year ending on the 30th June 1921.

5. As soon as possible after this Scheme comes into force, each Officer and Worker (unless temporarily engaged) will be deemed to be entitled to as many coupons as his monthly remuneration prevailing at the time shall be multiple of ten and for this purpose amounts less than Rs. 5 will not be counted and amounts over Rs. 5 will be counted as Rs. 10. At the end of each half-year (and for the purpose of this clause the first of such half-years shall be the one ending on the 30th June 1921) such coupons shall be renewed on the basis of the monthly remuneration earned in the last preceding month,

*Illustration.*—A person earning a monthly remuneration of Rs. 55 will be entitled to five coupons and a person earning a monthly remuneration of Rs. 56 will be entitled to six coupons.

6. Service Cards will be issued to each Officer and Worker on which will be entered the number of coupons to which the holder is entitled under the last preceding clause and on which will be noted on each payment day the conduct of the holder during the preceding period. The Service Cards must be produced by each Officer and Worker for inspection by the Distributing Officer on the closing of each half-year to enable him to see if the Officer or Worker is qualified for the benefits of this Scheme. Payment day means the day on which the remuneration or wages of each coupon-holder shall be paid.

7. The Managing Agents shall be entitled to add to alter or amend this Scheme or the method of working thereof.

8. The interpretation and working of this Scheme or any provision thereof by the Managing Agents or their authorised representative shall be final and no suit or legal proceeding whatsoever shall lie at the instance of any Officer or Worker. The decision of the Managing Agents on any question arising under or out of or in connection with this Scheme or any modification thereof shall be final and binding."

(Sd.) G. D. BIRLA,

*Chairman.*

Such schemes undoubtedly do a great deal towards making a factory a success; they aid smooth running and create *esprit de corps* amongst employees and employers; they are reflected favourably in every direction and not least of all on the duties of administration of Factory legislation.

### DISCUSSION ON MR. ABEL'S PAPER.

MR. MYLES in opening the discussion said it was interesting to find a profit sharing scheme in our midst. There was nothing new at all about the scheme; in fact such schemes had been tried time and again in England during the past hundred years. But as the Report on Profit Sharing and Co-partnership in the United Kingdom showed such schemes had in practice generally proved unstable. Only in a few instances had firms been on a profit sharing basis for any length of time. There was a tendency for the system to spread during times of industrial prosperity and to disappear in times of depression. The attitude of the modern Trade Union was not favourable towards such schemes, though in the Coal Settlement in the summer of 1921 the general principle was accepted. He hoped that the new scheme in Delhi would be successful.

LALA SHIV DAYAL expressed disappointment at the way in which certain important points had been omitted in the paper. The important question he considered was whether labour in India was mobile or not. He regretted that the paper in one word assumed that labour was mobile because of the facility of communications. The paper did not take into consideration the fact that India was a country of distances and there was also the further difficulty of language. On account of this difficulty he believed that there was no movement of labour from the south to the north or *vice versa*. He suggested to the author of the paper the consideration of the question of mobility of labour in detail and if he found that labour was not mobile, to adopt factory laws which might be more in harmony with the conditions prevailing in the provinces concerned. Another point was the difference in climatic conditions in different provinces. In his opinion all these considerations led to the inference that factory legislation should be a provincial concern and not an imperial one. The next point he referred was to the profit sharing scheme and he asked whether there was any factory in the Punjab or any Government concern such as the North-Western Railway or the printing presses owned by the Government where this scheme had been adopted. He concluded by saying that the reference to people coming from Rajputana was very meagre.

MR. ANTIA said that in regard to mobility of labour India cannot be regarded as one country but as a group of countries. It was too much to expect a Punjabi labourer to go south. Mobility of labour can be expected only in certain common linguistic provinces. In Bombay he found several labourers from the Central Provinces, Konkan and Bijapur. In Madras the labourers came from various parts of the Province. He therefore concluded that mobility of labour can be applied only to certain linguistic zones.

